SEPTEMBER 15, 1958

TECHNOLOGY DEPT.

Telephone Engineer

AND MANAGEMENT

THE TELEPHONE INDUSTRY MAGAZINE

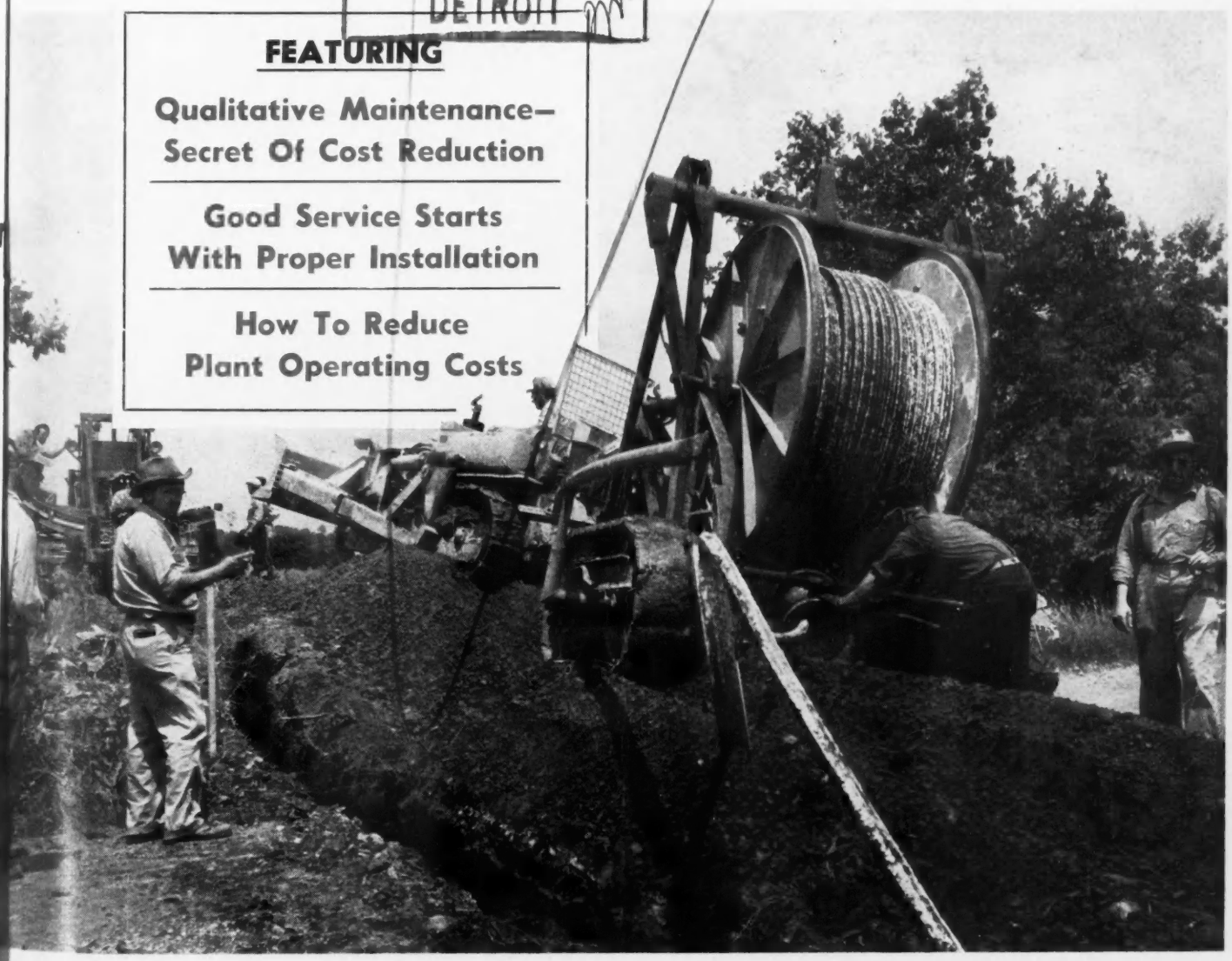
PUBLIC LIBRARY
SEP 16 1958
DETROIT

FEATURING

Qualitative Maintenance— Secret Of Cost Reduction

Good Service Starts With Proper Installation

How To Reduce Plant Operating Costs



COURTS and COMMISSIONS See Page 85

Washington Newsletter • New Development Notes

The TE&M Editorial — "Crowd-Pleaser Decisions"

Known By The Companies We Keep!

L. M. Berry and Company points with pride to its many customers throughout the United States and Canada. In Florida there are many Telephone Companies whose Directory work is handled by L. M. Berry and Company. Following are only a few of Berry's many valued customers in Florida:

Cairo Telephone Company (Ga.)

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General Telephone Company of Florida

Inter-County Telephone & Telegraph Co.

North Florida Telephone Company

Quincy Telephone Company

St. Joseph Telephone & Telegraph Co.

Southeastern Telephone Company

West Florida Telephone Co.

and many others!

Since 1910, more and more Telephone Companies have turned to L. M. Berry and Company to handle their Directory Advertising. As a result, Berry men today are successfully handling more than 950 directories for over 275 Independent and Bell Telephone Companies in 29 states and Canada.

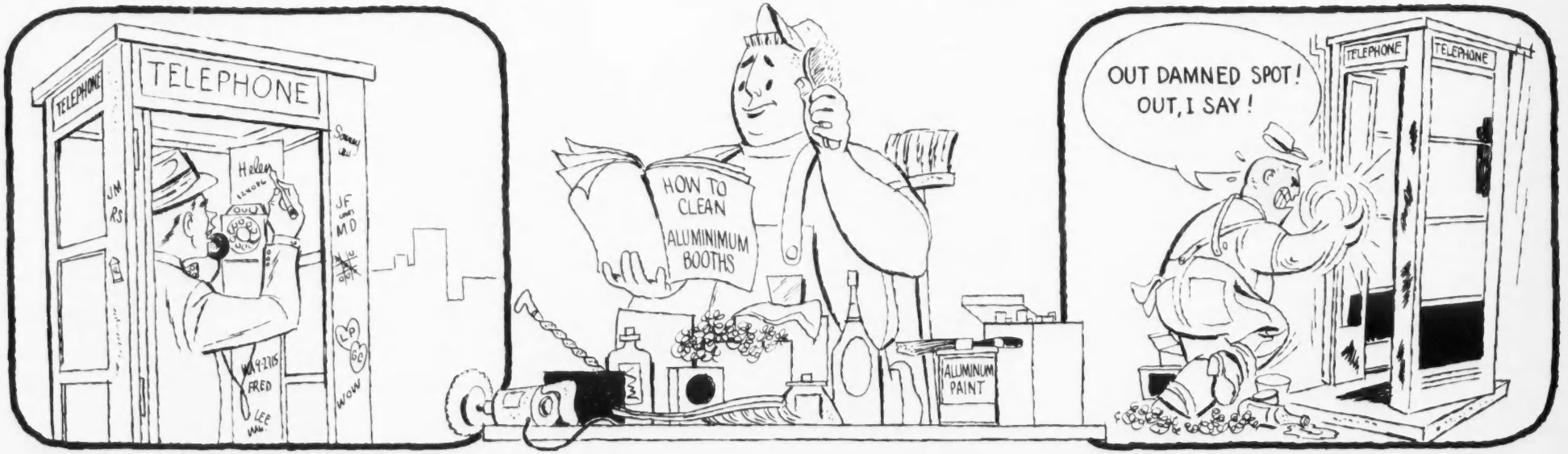
We would welcome an opportunity of having you as one of our many valued customers. Call or write today for details.

TELEPHONE DIRECTORY ADVERTISING EXCLUSIVELY

L. M. BERRY AND CO.

Hulman Building · Dayton 2, Ohio · BAldwin 4-7421

LASTING IMPRESSIONS ON ALUMINIMUM BOOTHS



ARE NO PROBLEM WITH SHERRON STEEL BOOTHS

Macbeth up there has his hands full. No wonder. Pencils and ballpoint pens indelibly mar the "protective" exterior that is given soft metals. Lipstick markings smudge all the more with rubbing. Not so with Sherron steel booths, though. The more-durable-than-ever finishes on today's Sherron zinc-coated steel booths repel markings . . . while the hard, dense metal of the gleaming stainless steel booths resists scratching. Thus maintenance is not a problem with Sherron steel booths.

There's a Sherron booth for every location and budget in either zinc coated, cold rolled or stainless steel.

SEE OUR CATALOG IN SWEET'S

SHERRON METALLIC CORP.
1201 FLUSHING AVENUE, BROOKLYN 37, N. Y.

It feels better!

No plastic electrical tape is as TOUGH as SCOTCH No. 33

REG. U. S. PAT. OFF.
BRAND

Super-tough "SCOTCH" Brand No. 33 Electrical Tape is stretchy and puncture resistant . . . yet thin enough to conform easily. Only the genuine "SCOTCH" No. 33—*invented* as a new type of wire splice covering—has "Scotty's" plaid on the can and "No. 33" inside the red core. Ask your distributor about the full line of "SCOTCH" Brand splicing materials, or write us for complete information.

"SCOTCH" and the plaid design are registered trademarks of 3M Co., St. Paul 6, Minn.

The price per splice is less . . .
Let us prove it!

MINNESOTA MINING AND MANUFACTURING CO.
St. Paul 6, Minn., Dept. MI-98

Don't just tell me . . . *show* me that the price per splice is less with "SCOTCH" No. 33. Send a man around.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE ___ STATE _____

MINNESOTA MINING AND MANUFACTURING COMPANY

. . . WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

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The Telephone Industry Magazine

TELEPHONE ENGINEER and MANAGEMENT

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FRONT COVER

Our cover photograph tells its own story as it sets the theme for a special "Construction and Maintenance" issue of TELEPHONE ENGINEER AND MANAGEMENT — an issue packed with articles we hope will be interesting and helpful to each one of TE&M's 14,000 readers.

BPA

MEMBER OF
BUSINESS PUBLICATIONS AUDIT
OF CIRCULATION, INC.

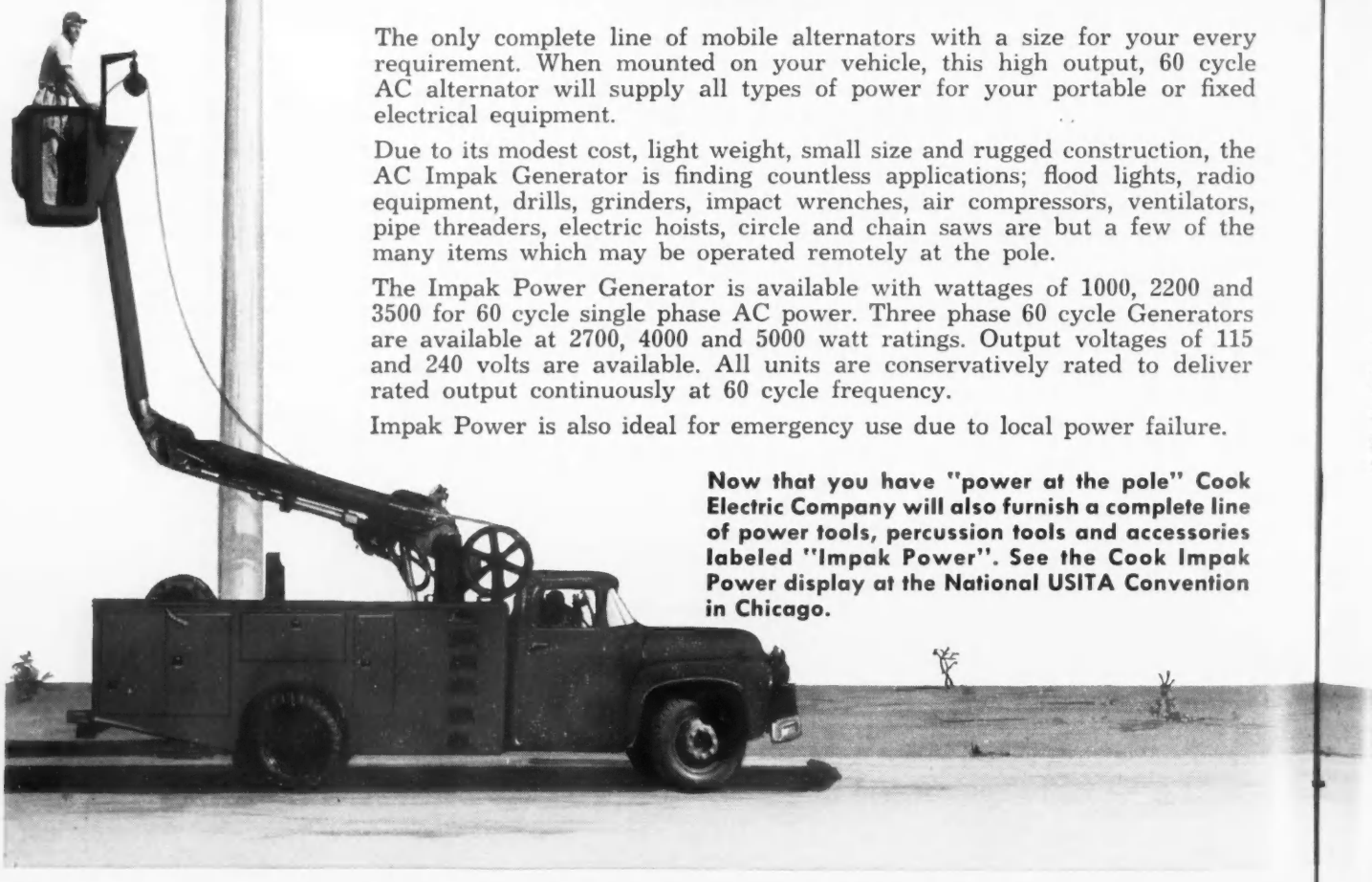
Volume 62, No. 18. Published on the 1st and 15th of each month by TELEPHONE ENGINEER PUBLISHING CORP. Office of Publication, Rochelle, Ill. Executive and Editorial Office, 7720 Sheridan Road, Chicago 26, Ill. Telephone — Rogers Park 4-3040. Subscriptions: U. S. and Possessions, $4.00 per year; Canada $4.50; in all other countries, $6.50. Single copies, U.S.A. 50 cents. Entered as Second Class matter at the post office at Rochelle, Ill. under the act of March 3, 1879. Copyright 1958 by Telephone Engineer Publishing Corp.

POSTMASTER . . . Please send form 3579 to TELEPHONE ENGINEER & MANAGEMENT, 7720 N. Sheridan Rd., Chicago 26, Ill.

Now Power at the Pole

A 60 CYCLE AC 110 VOLT OR 220 VOLT POWER SOURCE ON YOUR TRUCK WITH THE

New IMPAK POWER GENERATOR by COOK



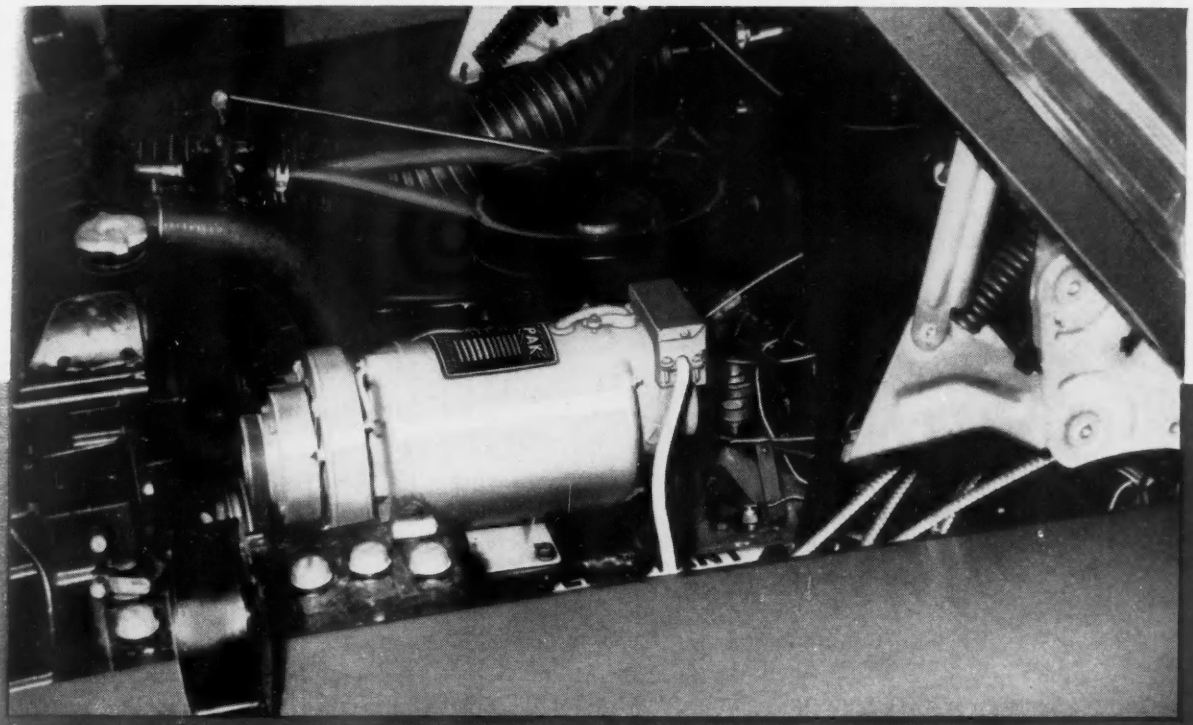
The only complete line of mobile alternators with a size for your every requirement. When mounted on your vehicle, this high output, 60 cycle AC alternator will supply all types of power for your portable or fixed electrical equipment.

Due to its modest cost, light weight, small size and rugged construction, the AC Impak Generator is finding countless applications; flood lights, radio equipment, drills, grinders, impact wrenches, air compressors, ventilators, pipe threaders, electric hoists, circle and chain saws are but a few of the many items which may be operated remotely at the pole.

The Impak Power Generator is available with wattages of 1000, 2200 and 3500 for 60 cycle single phase AC power. Three phase 60 cycle Generators are available at 2700, 4000 and 5000 watt ratings. Output voltages of 115 and 240 volts are available. All units are conservatively rated to deliver rated output continuously at 60 cycle frequency.

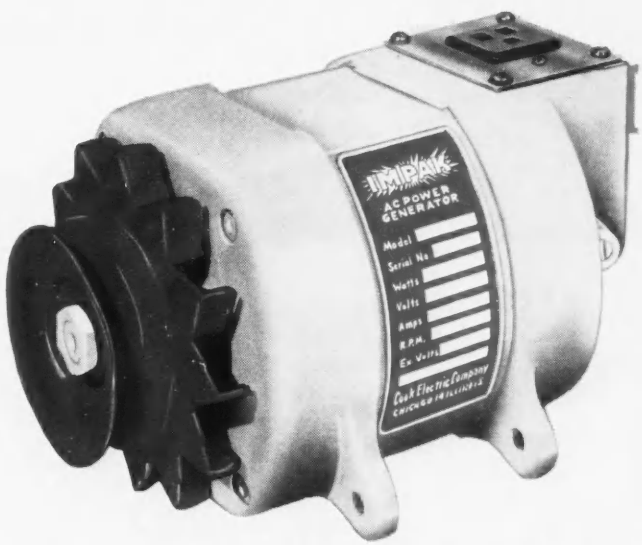
Impak Power is also ideal for emergency use due to local power failure.

Now that you have "power at the pole" Cook Electric Company will also furnish a complete line of power tools, percussion tools and accessories labeled "Impak Power". See the Cook Impak Power display at the National USITA Convention in Chicago.



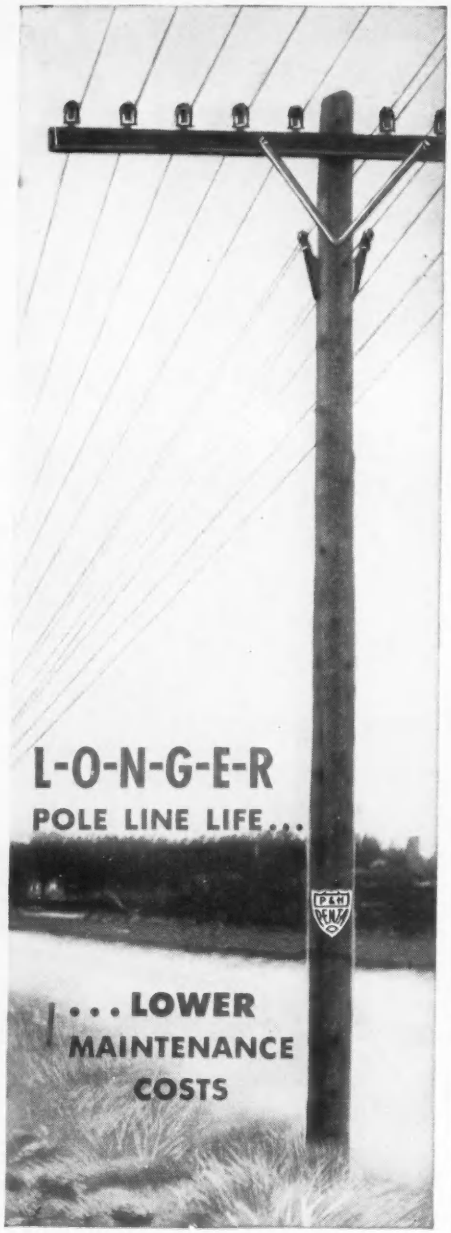
The Impak AC Generator mounted under the hood alongside the engine is driven by a belt drive from the front engine crankshaft pulley. The mounting is a simple procedure when the application is made with the appropriate mounting kit available for all popular makes of vehicles.

The AC Impak Generator operation is controlled from a dash mounted Impak control panel supplied with the unit. When the engine control throttle is set so that the control meter hand is indicating the green zone on the dial on the control panel, load may then be applied at the operator's discretion.



The DSD 1001 Impak Power Generator illustrated is a direct drive model and operates continuously. All larger units are clutch driven for high speed RPM.

COOK ELECTRIC
Since 1897
Company
2700 SOUTHPORT AVENUE
CHICAGO 14, ILLINOIS



SPECIFY
NORTHERN
WHITE CEDAR

P&H PENTA

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Clean from Butt to Tip

Write for complete information
PAGE & HILL, Inc.
Minneapolis 3, Minn.

- MOSTLY ABOUT PEOPLE across the editor's desk

Pre-Convention Issue

OUR NEXT issue — October 1 — will be our Pre-Convention Number. The coming national convention of the United States Independent Telephone Association scheduled for October 12, 13, 14 and 15th with headquarters at the Conrad Hilton Hotel, Chicago, will be previewed and provide a showcase for the manufacturers and suppliers that will be exhibiting. All of the better companies will carry advertising in this issue and this section will be an interesting feature.

Advance Registration

THE USITA, from its Washington, D. C. headquarters, will again use their advance registration plan to facilitate and aid in quick registration on your arrival at the convention hotel. As this is the most important gathering of telephone people during 1958 we hope YOU are planning to attend. Our Pre-Convention Number of October 1 will present the official program for the meeting with basic information about the speakers. Room numbers of exhibits will also be given so that you may plan your visit carefully.

Directory Idea

MORE and more telephone directories are being published with abbreviations of central office names. MOnroe is now MO, JAckson is now JA, and as a result many more listings are printed on fewer pages. Leon Roberts, Director of Information of USITA had a paragraph on this feature in the Association Letter #706 directed to member companies. Leon prepares a newsy and factual bulletin to members and we enjoy reading it.

New Exhibitors

GEORGE MORSE, of Reliable Electric Company, Chicago, and perennial chairman of the Exhibitors Committee of USITA, reports to us that several new exhibitors will make their first appearance at the coming national convention. His predictions point to the largest exhibitors' group on record. The entire 5th and 6th floors of the Conrad Hilton have been assigned to exhibitors.

H. C. Ryon

MANY FRIENDS of H. C. (Red) Ryon welcomed him on his return to the North Electric Company at Galion, Ohio. Red was with North for many years before he joined the Automatic Electric Company some years back, so his return was cause for a celebration for the company and for his many Ohio friends. He resumed his career in Galion on the first of this month. You will see his picture on the North company advertisement in this issue.

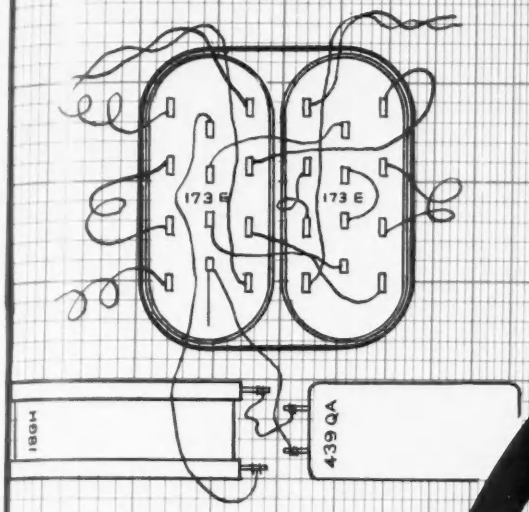
"Hard Sell" Program

SIGNS of the recession are fading in industry as the public prepares for the results of the 3rd. quarter earnings. The Bell System starts a "hard sell" program in many national magazines starting October 1.

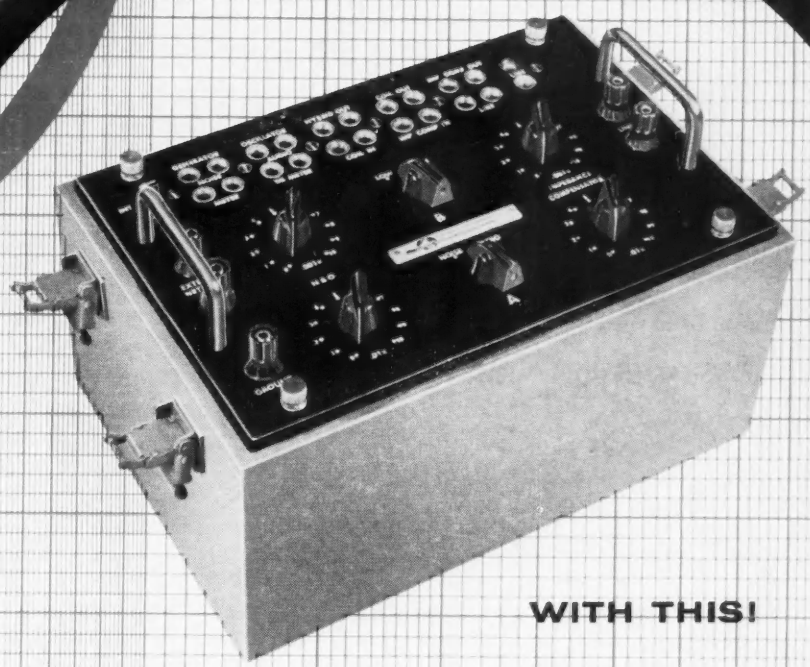
"Photographer at Work"

BILL McCLUSKEY, Independent telephone owner at Rock Creek, Ohio, was on the spot on July 1 when the giant explosion opening the St. Lawrence Seaway was blasted. Bill has colored stereo slides of the large project from its beginning and was showing them at the recent New York state convention where he and his nice wife were in attendance.

Acceptance tests are simpler, quicker with Airtronics PORTABLE Hybrid Test Set



NO MORE OF THIS



WITH THIS!

Portable but DURABLE

Airtronics Portable Hybrid Test Set is built to withstand the rough handling of normal testing operations. Rugged construction throughout, housed in heavy-gauge aluminum travel case with handy carrying handle.

How many times have you heard telephone men say, "Why can't we have a complete Test Hybrid, all in one case? No maze of tape and wire connections. No soldering and unsoldering. No strapping and unstrapping. No more broken connections that are so hard to find, so time-consuming to repair!"

The Airtronics Portable Hybrid Test Set eliminates these problems. Adjustments are made with simple switch or knob settings for all acceptance tests on repeatered toll and interoffice trunks.

The 600 ohm or 900 ohm hybrid structure has high internal balance, impedance matching coil, impedance compensator and capacity decades. The controls simplify trunk completion tests, return loss or singing point measurement, or impedance compensator adjustment Network build-out values easily determined by test.

Modernize your entire hybrid testing procedure, with the new Airtronics Portable Test Hybrid Set. Write today for full details.

Another Airtronics Product for the Telephone Industry:
Packaged Program Equalizer embodying all possible arrangements for use on 5, 8 or 15 KC loaded channels.

A PRODUCT OF

AIRTRONICS INTERNATIONAL CORPORATION

P.O. Box 8576, Fort Lauderdale, Florida (6900 West Road 84)

Get Ready . . . *Get Set . . .* *Go!*

October 12-13-14-15

CONRAD HILTON HOTEL — CHICAGO, ILLINOIS

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Of The

UNITED STATES

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GENERAL SESSIONS

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Register Now With The

United States Independent Telephone Association

438 Pennsylvania Bldg. — Washington 4, D. C.

MICROWAVE AND CARRIER SYSTEMS ENGINEERS

Here is your opportunity to join an expanding organization devoted to design and development of specialized microwave and carrier multiplex systems for communications and data handling

If you are experienced in toll transmission engineering or telephone plant equipment engineering, you may qualify for challenging positions in Collins new and modern engineering laboratory in Dallas, Texas.

Electrical and mechanical engineers at all experience levels are needed for the following:	Systems engineers for design and development of microwave and carrier multiplex systems with applications in SAGE system, radar relay, multi-channel telephone communications and TV links.	Design and development engineers for research and development of microwave and carrier multiplex equipment.
	Equipment engineers for application and collateral engineering liaison between engineering, manufacturing and installation.	Technical writers for preparation of instruction books, operating manuals, maintenance manuals.

Collins present expansion program in microwave and telephone equipment research and development provides exceptional opportunity for your continued professional advancement.

Send your resume to:
Director of Industrial Relations
Collins Radio Company
1930 Hi-Line Drive
Dallas, Texas

COLLINS CREATIVE LEADER IN COMMUNICATION COLLINS

COLLINS RADIO COMPANY, 1930 HI-LINE DRIVE, DALLAS, TEXAS • CEDAR RAPIDS, IOWA • BURBANK, CALIFORNIA

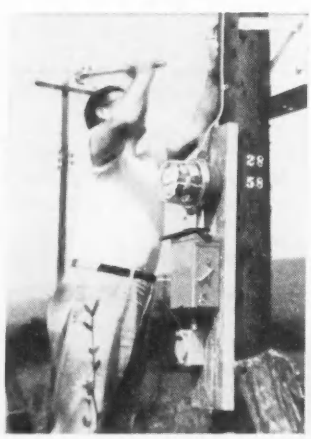
Good News from Kellogg

K-31 brings toll quality to rural carrier at low cost!

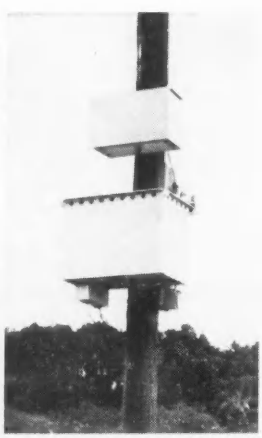
Transistorized! Up to 8 Separate Voice Channels!

Kellogg's new K-31 rural subscriber carrier system provides telephone companies with toll quality subscriber carrier at low cost. The system is completely transistorized, features printed circuits, miniaturized sub-assemblies and plug-in construction.

Standby power, consisting of two small batteries and a transistorized charger in a pole-mounted housing, is available. This is possible because power consumption is less than three watts even during talking.



All subscriber terminal equipment, including standby power supply, are pole-mounted, easy to install.



Weatherproof housings and sun shields are additional K-31 features.

K-31 has built-in compandors to assure quiet talking circuits and is automatically regulated to eliminate the effect of changing weather conditions over a wide range of carrier line losses.

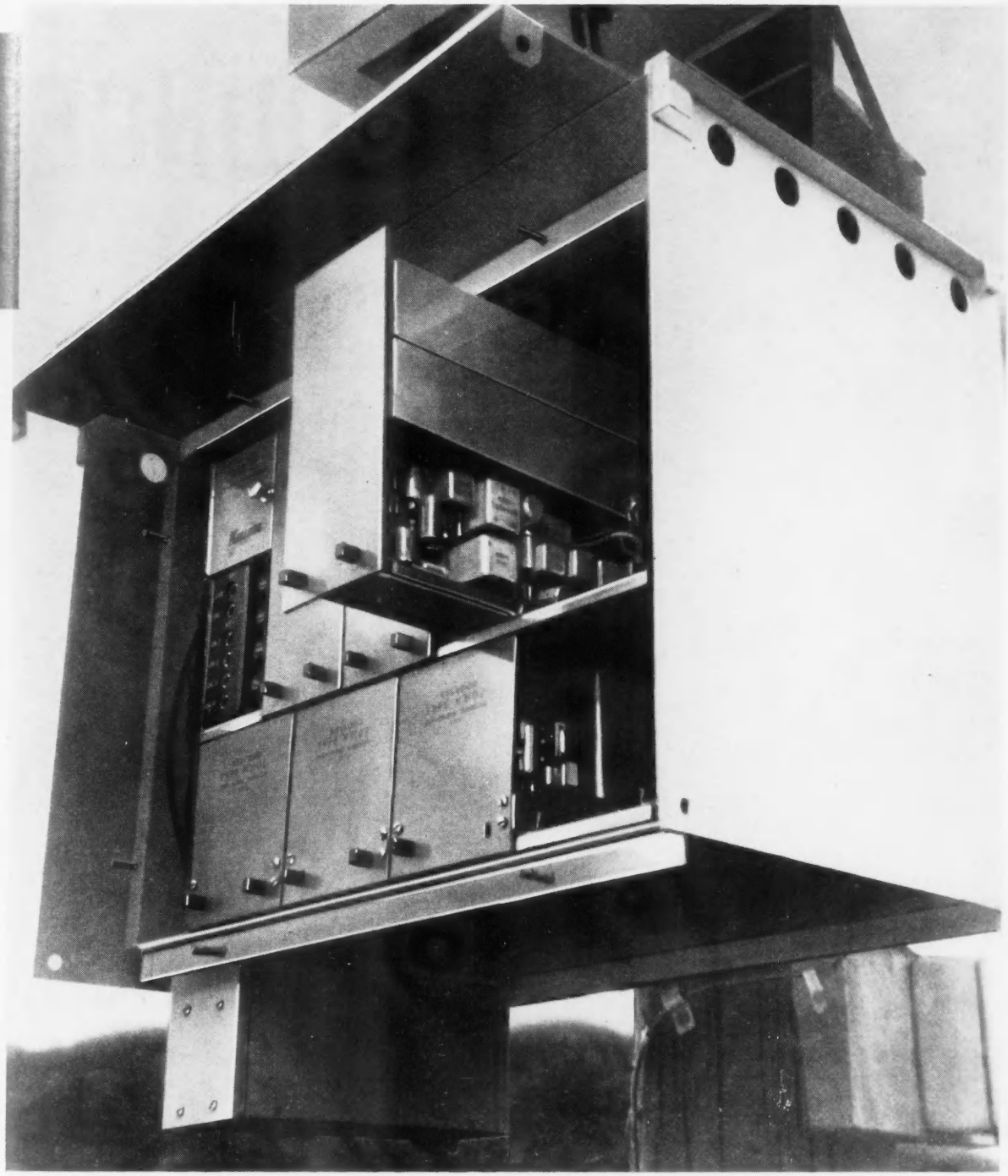
Line-up and test procedure is very simple —a single level control for each direction of transmission. Terminating telephone type jacks are provided for ease and speed in testing. Installation time is held to a minimum by the use of a unique pole-mounted housing with built-in protected terminal blocks for external connections.

These design features plus top quality components and workmanship make K-31 reliable and stable in its operation.

Ask your Kellogg sales representative for full details.

Kellogg Switchboard and Supply Company
6650 South Cicero Avenue, Chicago 38, Illinois
Communications Division of
International Telephone and Telegraph Corporation

KELLOGG
Communications Division of
CHICAGO, ILLINOIS
IT&T



Plug-in construction makes K-31 maintenance simple.

Regional Offices and Warehouses:

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Burlingame, Calif.
OXford 7-5780
TWX SAN MATEO CAL 06

GEORGIA
1594 Southland Circle, N.W.
Atlanta 18, Georgia
SYcamore 4-2441
TWX AT 351

ILLINOIS
4600 So. Tripp Ave.
Chicago 32, Illinois
CLiffside 4-4300
TWX CG 3296

KANSAS
7th & Sunshine Road
Kansas City 15, Kansas
MAyfair 1-4418
TWX KC KAN 1055

MINNESOTA
6100 Excelsior Blvd.
Minneapolis 16, Minn.
West 9-6715
TWX MP 1195

NEW JERSEY
165 Prospect Street
Passaic, New Jersey
PRescott 9-3610
TWX PAS 1067

OHIO
1555 West Fourth Street
Mansfield, Ohio
LAfayette 4-6511
TWX MANS 0132

TEXAS
1515 Turtle Creek Blvd.
Dallas 7, Texas
RIverside 7-5191
TWX DL 02

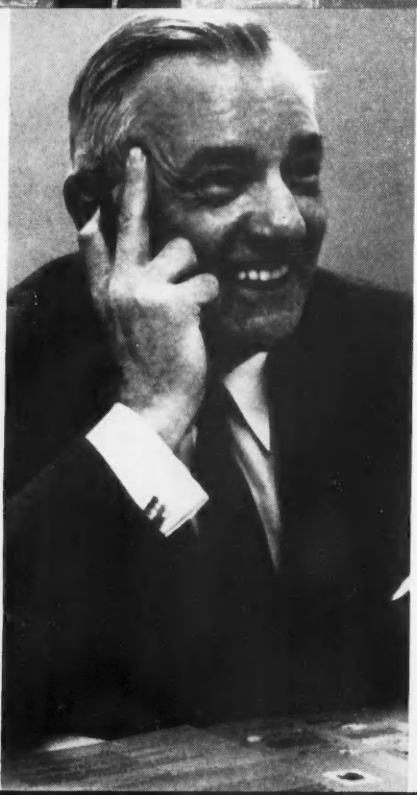
EXPORT—165 Prospect Street, Passaic, New Jersey, PRescott 9-3610, TWX PAS 1067

IBM ANNOUNCES

"For one reason or another, we've been putting off going into IBM—but now, installing the IBM SERIES 50 will save us enough to make it really worth while!"

DATA PROCESSING DESIGNED FOR THE SMALL, GROWING BUSINESS

SERIES
IBM /50



"It delights me to know my small company will be backed up by the same IBM applications experience and the same service as the biggest names in industry."

NEW IBM SERIES 50 is a complete punched card system design and priced to meet the needs of the smaller, growing business. Wi IBM SERIES 50, you get all the functions of larger IBM systems. T only difference is lower operating speeds. These have been adjusted the needs of smaller businesses.

COST CONSCIOUS. IBM SERIES 50 is priced within the rea of smaller business budgets. It means operating efficiency at a pri that respects your profit margins.

DESIGNED FOR GROWTH. IBM SERIES 50 methods are based the same punched card principles that are the backbone of larger IB data processing systems. Your applications and procedures are co patible with any size IBM system.

IBM DEPENDABILITY. As an IBM customer, your company rea the advantages of more than 44 years of applications experience a dependable customer service. Your company can now learn throu first-hand experience how data processing fits into your grow business picture.

ACT NOW... Find out today how easy it is to put IBM SERIES to work. Call your local IBM representative or write to: Internatio Business Machines Corporation, Department B-1, 590 Madison Aven New York 22, N. Y.

IBM DATA PROCESSING

This busy metropolitan area is the termination of over 1000 miles of microwave systems, providing reliable communications across town and country for the Western Union Telegraph Company. ANDREW's experience in research, development and manufacturing is the reason why the dependable performance of an ANDREW PS8-37, eight-foot Parabolic antenna was selected for this installation.

All ANDREW parabolic antennas conform to the newly proposed RETMA-FCC standards governing radiation patterns and side lobes, and they are *guaranteed* to give specified pattern and VSWR in your microwave system.

From a selection of over thirty stocked parabolic antennas, you can choose the type and size that will give optimum system performance with absolute mechanical and electrical reliability.

Microwave engineers have found ANDREW a valuable partner in planning their communication systems. A parabolic antenna computer for calculating system performance is available to you upon request. Write today for information and expert advice relative to your microwave antenna system requirements.

ANTENNAS • ANTENNA SYSTEMS
TRANSMISSION LINES

Andrew CORPORATION 363 EAST 75TH STREET • CHICAGO 19

OFFICES: NEW YORK • BOSTON • LOS ANGELES • TORONTO

NEW MIF CABLE SUSPENSION CLAMPS...

Unmatched Performance-wise

Performance-wise, these clamps are unmatched. Once the clamp is installed and the clamping nut or nuts tightened, the messenger will remain tightly clamped regardless of any pole shrinkage. Large area pads resist sinking into soft poles—teeth on pads resist vertical movement. To facilitate messenger stringing, a "stringing finger" is incorporated in all clamp designs. Groove ends are belled to permit use for both tangent and angle supports. Each size has extra groove for ground wire if required. Specifications and price data in our new telephone industry catalog. *Send for your copy today.*

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RESEARCH • ENGINEERING • MANUFACTURING
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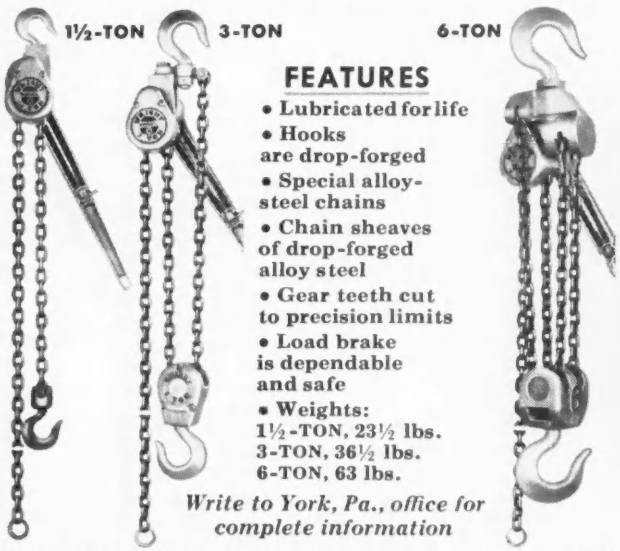
NEW WRIGHT Type "C" Pull-A-Ways

THREE SIZES—1½, 3 and 6-Tons



FEATURES

- Lubricated for life
- Hooks are drop-forged
- Special alloy-steel chains
- Chain sheaves of drop-forged alloy steel
- Gear teeth cut to precision limits
- Load brake is dependable and safe
- Weights:
  1½-TON, 23½ lbs.
  3-TON, 36½ lbs.
  6-TON, 63 lbs.

Write to York, Pa., office for complete information

Wright Hoist Division
AMERICAN CHAIN & CABLE

ACCO

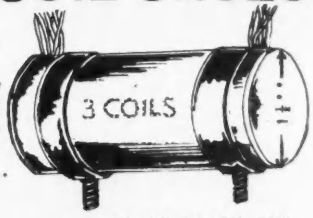
York, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

CEECO

C152 TYPE LOAD COIL CASES

with types C651 (44MH) or C652 (88MH) coils encapsulated in plastic. A new smaller size for mounting directly in plastic cable splice-terminal cases.

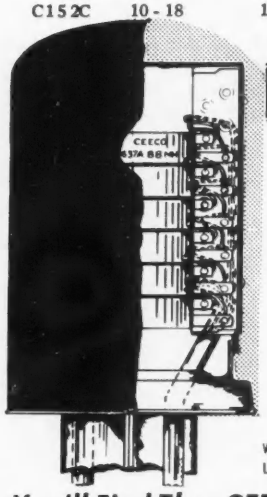
TYPE	NO. COILS	MAX. LGTH.
C152A	1-3	3''
C152B	4-9	6¼''
C152C	10-18	13''



WRITE TODAY FOR BUTELCO CIRCULARS 158-A AND 258-C

CEECO

PARKWAY PEDESTAL TERMINAL

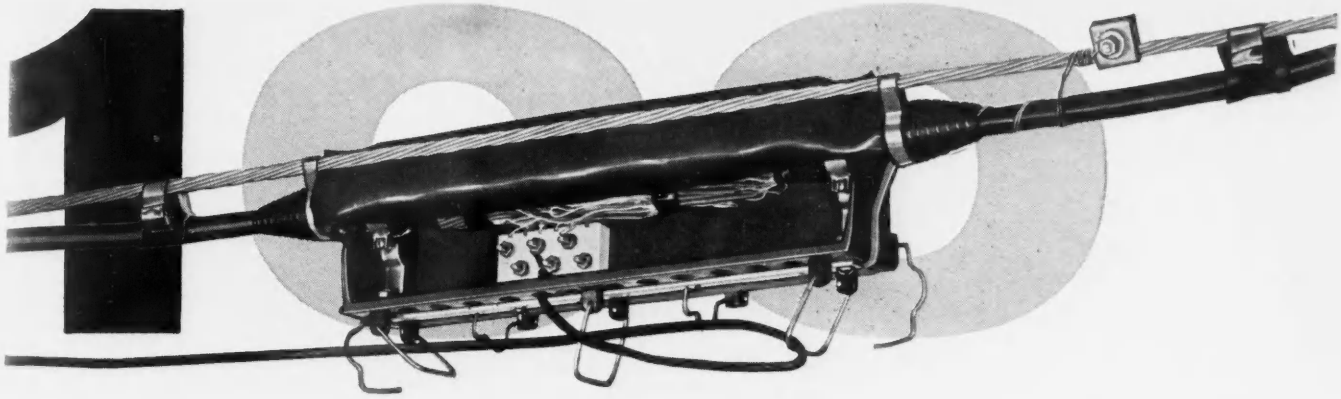


For loading plastic direct burial cables. Uses types C637A (88MH) or C637B (44MH) coils. 6 to 26 pair blocks loaded only as needed. All steel construction provides an easy access for testing, splicing, connecting or for buried drop distribution.

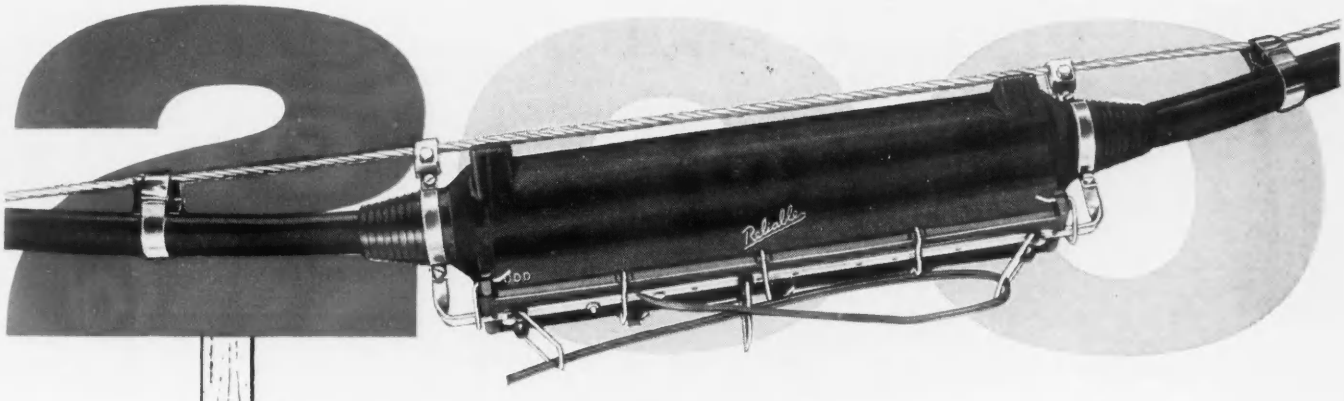
WRITE FOR CIRCULAR ON CEECO LOADING COIL SPECIFICATIONS

You'll Find The CEECO Equipment You Need at

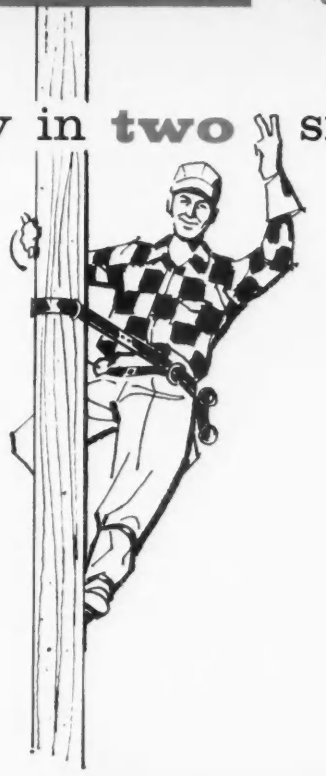
BUCKEYE TELEPHONE & SUPPLY CO.
P.O. Box 5707 HUdson 8-0655 Columbus 21, Ohio



Reliable ready-access terminals . . .



now in two sizes for cables up to 2.2″ in diameter



Reliable now offers Ready-Access Cable Terminals in two sizes for use with plastic jacketed, plastic insulated cables.

Catalog Series 100 – for cable up to 1.2″ O.D.

Catalog Series 200 – for cable from 1.0″ to 2.2″ O.D.

Catalog Series 100 and 200 units are easily installed and easily maintained terminal and splicing facilities. Up to four 6-pair Reliable Catalog No. 105 Terminal Blocks can be added to both Series Terminals, or the space can be used for loading coils. The flexible neoprene cover is conveniently folded back, as in upper illustration, while internal wiring is altered to meet changing requirements.

You will get interesting details by writing for Product Data Sheet No. 17, featuring Ready-Access Cable Terminals.

Reliable

ELECTRIC COMPANY • FRANKLIN PARK, ILLINOIS

A HALF CENTURY OF SERVICE TO THE UTILITIES

*Koiled Kords RETRACTILE CORDS

Give the Best Service

KOILED KORDS have proved over the years that they give the best service to subscribers and telephone companies alike.

KOILED KORDS have reduced cord maintenance and replacement to an absolute minimum.

KOILED KORDS keep their spring-like shape and last indefinitely under the toughest conditions.

KOILED KORDS are smooth, clean and cannot be harmed by moisture, grease, acid fumes or sunlight. Be sure your subscribers have the best . . . KOILED KORDS

Available from your independent telephone supplier in black and many colors to complement colored telephones.

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TWX — NH84

KOILED KORDS, THE ORIGINAL RETRACTILE CORDS, ARE THE RESULT OF 17 YEARS OF RESEARCH, DEVELOPMENT AND USE.

*KOILED KORDS IS A TRADE MARK OF KOILED KORDS, INC.

You get **low cost**

-and **top performance, too**

when you string

Copperweld®

O-Eighty-Thirty

TELEPHONE LINE WIRE

Copperweld* O-Eighty-Thirty gives you excellent conductivity, complete rust-resistance and permanent high strength for safe, long-span rural construction. As a result, your subscriber loops and secondary toll lines will perform better, last longer, require less maintenance and cost less over the years. And as a bonus value, Copperweld is the only high-strength wire suitable for future conversion to carrier. For prices, sag data and staking tables, write us today.

*Trade Mark

Everything
LEICH
A MEMBER OF THE GENERAL TELEPHONE SYSTEM
GENERAL SYSTEM
ONE OF AMERICA'S GREAT COMMUNICATIONS SYSTEMS

Needs Maintenance...but—

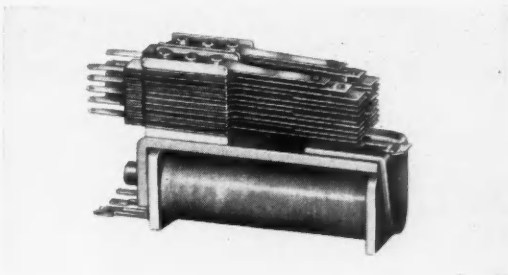
LEICH DIAL SYSTEM users tell us that it is easier to understand and maintain than any other dial switching system.

It's true that the Leich Dial System requires maintenance. Just about everything does. It's also true that the Leich Dial System requires less upkeep than any other dial system.

Telephone men with no dial experience operate and maintain the Leich Dial System easily. Many of them have learned the few fundamentals they need to know by attending Leich's training school. We hold classes several times a year at the Leich Electric plant in Genoa, Illinois.

We're happy to report that there are now over 800 Leich Dial Systems giving their owners easy-to-understand, dependable switching. This kind of service can be yours, too. Write today for more information.

Here's Why—

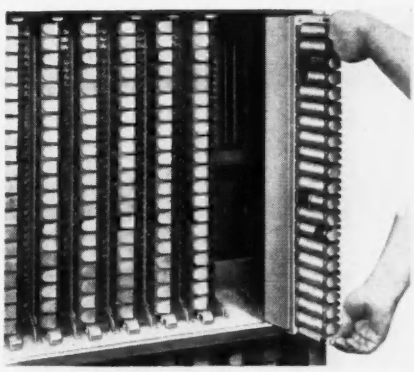


1. All-Relay Dependability

The Leich Dial System is an all-relay dial switchboard Leich relays are well known for their reliability of operation and long life. They eliminate mechanical switching mechanisms which are apt to wear and require maintenance or adjustment

Leich relays have been tested for many million operations with no failures. Leich relay-switches have withstood millions of operations without readjustment, replacement, or signs of wear.

Your switchboard man can learn the basic maintenance more quickly because he is more familiar with relays than with mechanical parts.



2. Jack-In Flexibility

You can jack-in lines, links, and selectors with the flexible Leich Dial System. This eliminates the need for factory installers, soldering, and wiring.

If trouble should develop in a relay-switch or a relay bar, it's no great worry. A spare part can be jacked-in and the part in trouble returned to the shop for expert servicing.

3. Everything Is Accessible

The Leich Dial System has no back-to-back arrangements. You don't have to spend hours removing one part to get at another.

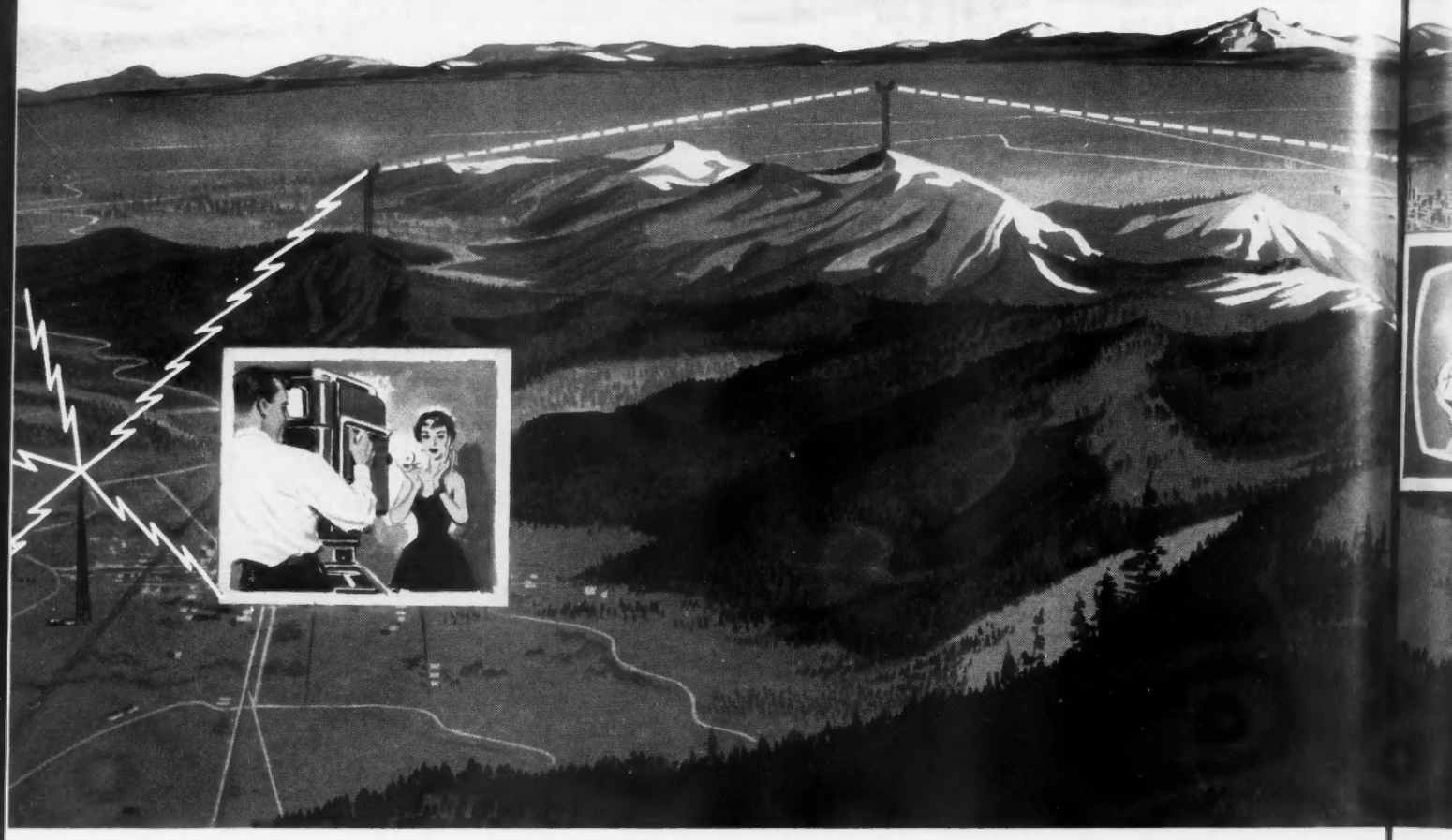
All the parts are arranged so that each is visible and accessible. For example, note the relay bar above. It can be slid out from its jack and in a minute or two the cover opened up to expose the relays and the wiring

EICH SALES CORPORATION, 427 WEST RANDOLPH STREET, CHICAGO 6, ILLINOIS

CIFIC COAST: 11401 WEST PICO BLVD., LOS ANGELES 64, CAL. | **SOUTHWEST:** 1227 SLOCUM ST., DALLAS 7, TEX. | **SOUTHEAST:** 5126 SOUTH LOIS ST. TAMPA 11, FLA.

anufacturers of telephones, switchboards and related apparatus since 1907

PHILCO
TV Microwave



. . . provides reliable, low-cost, unattended TV relaying!

Philco television microwave systems provide economical transmission of NTSC compatible color or monochrome TV signals . . . plus full audio channel. Here is modern microwave . . . especially designed to meet the needs of community TV operators for thoroughly dependable operation. Philco TLR systems provide S-T-L relaying in the 5900 to 7400 mc bands.

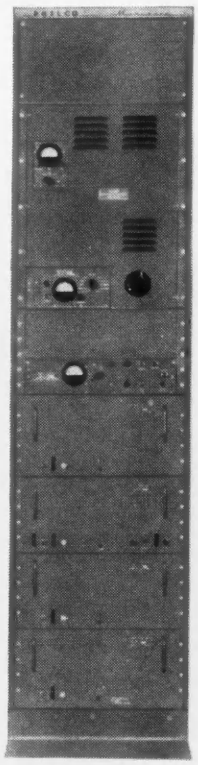
Heavy duty power supply provides 1 full watt output to insure outstanding operational reliability in continuous unattended service.

All components mount in standard 19″ racks. Unitized circuit construction simplifies maintenance. Built-in test and metering circuits combine with automatic stand-by to assure uninterrupted service at all times.

Here is reliability of performance unaffected by severe weather, free from the many limitations of wire and pole lines, unhampered by problems of difficult terrain, overwater transmission or expensive rights-of-way.

Philco engineers will be happy to help you with your special Microwave requirements. Please contact us for further information. Look ahead . . . and you'll choose Philco.

- **Highly reliable, unattended one-watt operation**
- **Field proven in extended multi-hop applications**
- **True repeater permits top quality, long haul operation**
- **Highest power in the industry**
- **Full voice channel multiplexing**
- **Philco offers complete turnkey service . . . surveys . . . installation . . . maintenance**



TLR-4
Repeater

Repeater—The Philco TLR-4 Microwave Repeater is a true repeater utilizing the heterodyne principle to produce high performance quality and simplicity of operation and maintenance.

Because video performance of a microwave system is determined mainly by the transmitting and receiving terminals, the introduction of the TLR-4 Heterodyne Repeater, which is essentially transparent, results in optimum overall system performance.

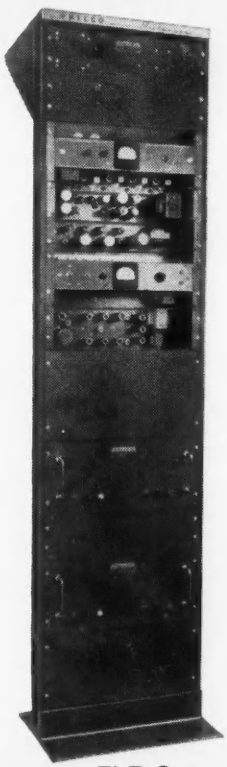
The output frequency of the TLR-4 Repeater is derived from the input signal (±190 mc) provided by a crystal. Therefore, the output frequency is independent of adjustment or drift of the microwave local oscillator.

Field maintenance testing of the TLR-4 Repeater is rapid, consisting only of RF and IF bandpass checks. Only simple IF sweep equipment is needed to obtain original factory alignment of the IF strips for differential phase and differential gain requirements. No special phase testing nor phase correction adjustments need be made.

TLR-6
Transmitter

Transmitter—The Philco Model TLR-6 Transmitter consists of three basic units: (1) a transmitter chassis, (2) a +750 volt dc power supply and (3) a +300 volt dc power supply. All units are designed for rack mounting in a standard 19″ relay rack.

Transmitter chassis contains the reflex klystron r-f generator and associated modulator, a-f-c circuits; wavemeter and amplifier, metering circuits for monitoring within the equipment, a built-in test signal generator, and a —500 volt power supply. All operating controls and the more frequently used maintenance controls are located on the front panel of the transmitter chassis.



TLR-6
Receiver

Receiver—The Philco Model TLR-6 Receiver consists of seven basic units: (1) a Pre-Amplifier and Mixer Assembly, (2) a Receiver Chassis, (3) an Automatic Frequency Control Chassis, (4) a Local Oscillator Chassis, (5) a Video Chassis, (6) a 300 Volt Power Supply and (7) a 105 Volt Power Supply.

The Pre-Amplifier and Mixer Assembly is connected to the waveguide support at the rear of the rack, while the remaining six units are rack mounted.

The Receiver Chassis contains an IF amplifier plus metering circuits for monitoring critical points within the equipment.

The Automatic Frequency Control Chassis contains a repeller power supply in addition to the AFC circuits.

At Philco, opportunities are unlimited in electronic and mechanical research and engineering.

PHILCO®

GOVERNMENT & INDUSTRIAL DIVISION

4710 Wissahickon Avenue • Philadelphia 44, Pennsylvania

In Canada: Philco Corporation of Canada Limited, Don Mills, Ontario

Telephony is go

LENKURT "building-block" system plans for your growth

TELEPHONE companies are installing microwave to obtain additional toll circuits for several good reasons. Among them: (1) It is quick, easy and economical—(2) requires no right-of-way—(3) solves tough terrain problems —(4) is simple to maintain—and (5) highly reliable—more weatherproof than other facilities.

And experienced telephone people are choosing Lenkurt *Microtel!* That's because it's the most advanced microwave equipment on the market and the most flexible in design to meet future growth requirements. Consider the rate of toll growth and you'll see how important this is!

Simple plug-in units

With flexible Lenkurt 45BX Carrier, a system can be installed initially with only a few carrier channels. Then, as traffic increases, it can be expanded economically at will by the addition of more channelizing equipment or by paralleling transmitter-receiver assemblies.

All plug-in units of Type 74A Microtel are similar-to those in the famous "universal" Lenkurt 45-class equipment. This greatly simplifies maintenance.

Start small, if you wish, with as few as 4 to 12 channels. Later on you can add 12- or 24-channel groups on a stackable basis. A single *Microtel* terminal can accommodate up to 240 channels; and with r-f circulators, *as many as four systems can use the original antenna and antenna transmission line!* For complete information, send the coupon or call your nearest Automatic Electric representative.

Automatic Electric Sales Corporation
Northlake, Illinois ***(Att.: T. B. Collins)***

Please send booklet describing new Lenkurt Microtel System.

NAME ..... TITLE .....

COMPANY .....

ADDRESS .....

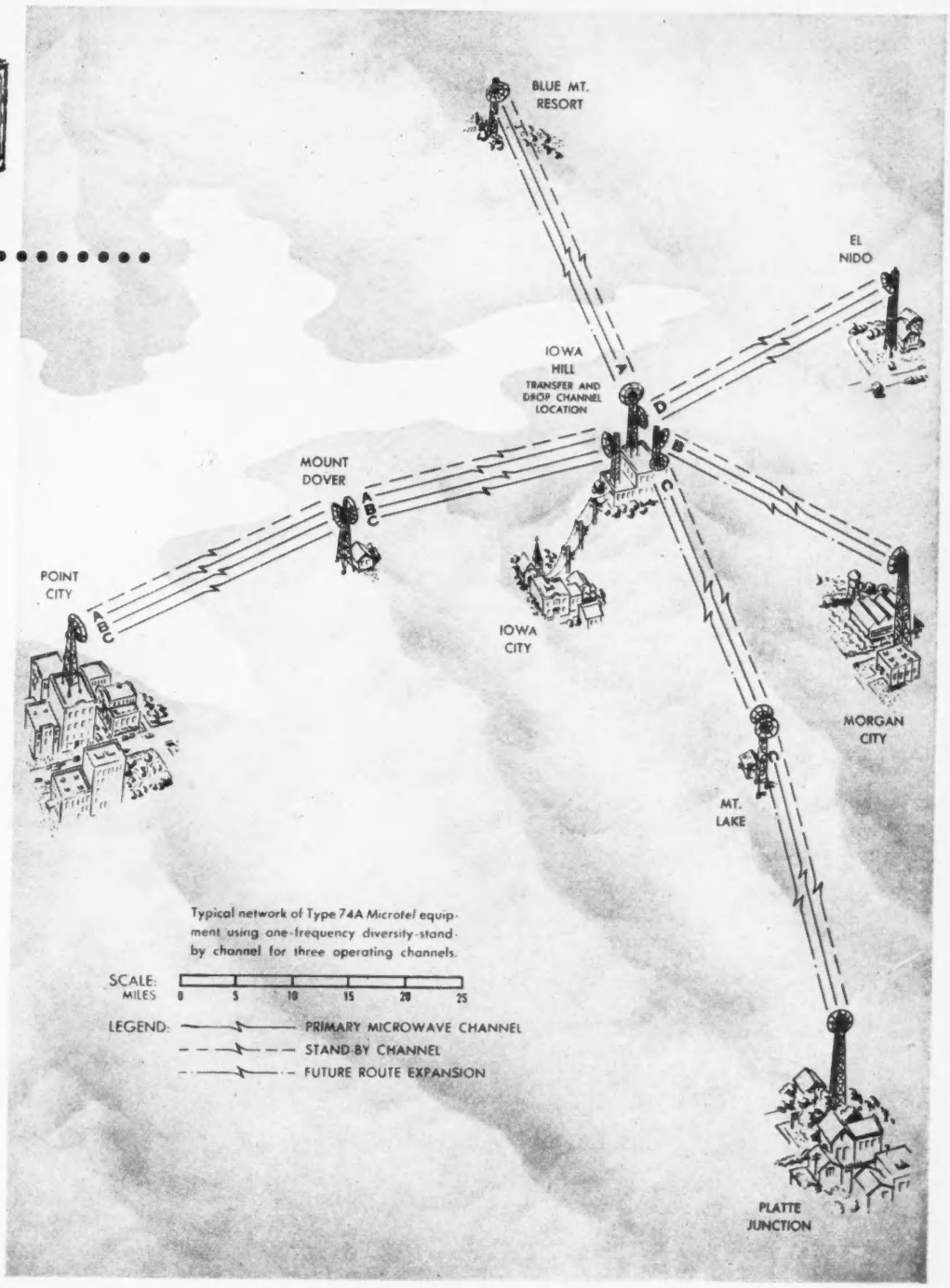
CITY ..... ZONE ..... STATE .....

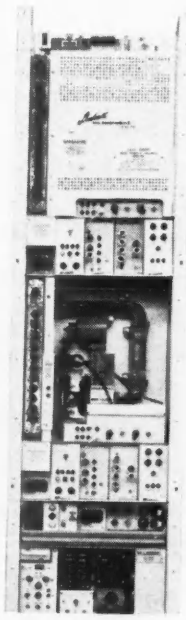
In Canada: Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16, Ontario.

New 6,000 mc. **microtel** Type 74A

Designed to save space (2 systems can be mounted on a single rack) and use less power (only 360 watts per system), new Lenkurt *Microtel* Type 74A provides high-quality, broad-band microwave transmission facilities in the 6,000 mc. region. *Microtel* is equally satisfactory whether the need is for only a few circuits or for a high-density network with 720 voice channels (three operating r-f channels with one stand-by on a common antenna). As many as 960 voice channels can be supplied on 4 operating r-f channels. It is available from Automatic Electric as a complete package – *engineered, furnished and installed* – on one order.

ing microwave!





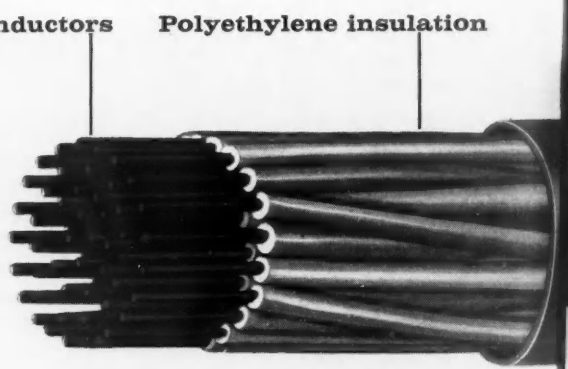
AUTOMATIC ELECTRIC

Subsidiary of **GENERAL TELEPHONE**

MEET A NEW MEMBER OF A FAMOUS

PHELPS DODGE THERMOPLASTIC EXCHANGE AREA TELEPHONE CABLE

FOR AERIAL, DUCT AND DIRECT BURIAL USES



Exchange Area Telephone Cable, Aerial and Duct Type
(Supplied with protective aluminum armor and outer polyethylene jacket when intended for direct burial)

The controlled craftsmanship and quality of Exchange Area telephone cable are typical of the entire line of Phelps Dodge thermoplastic telephone wires and cables including:

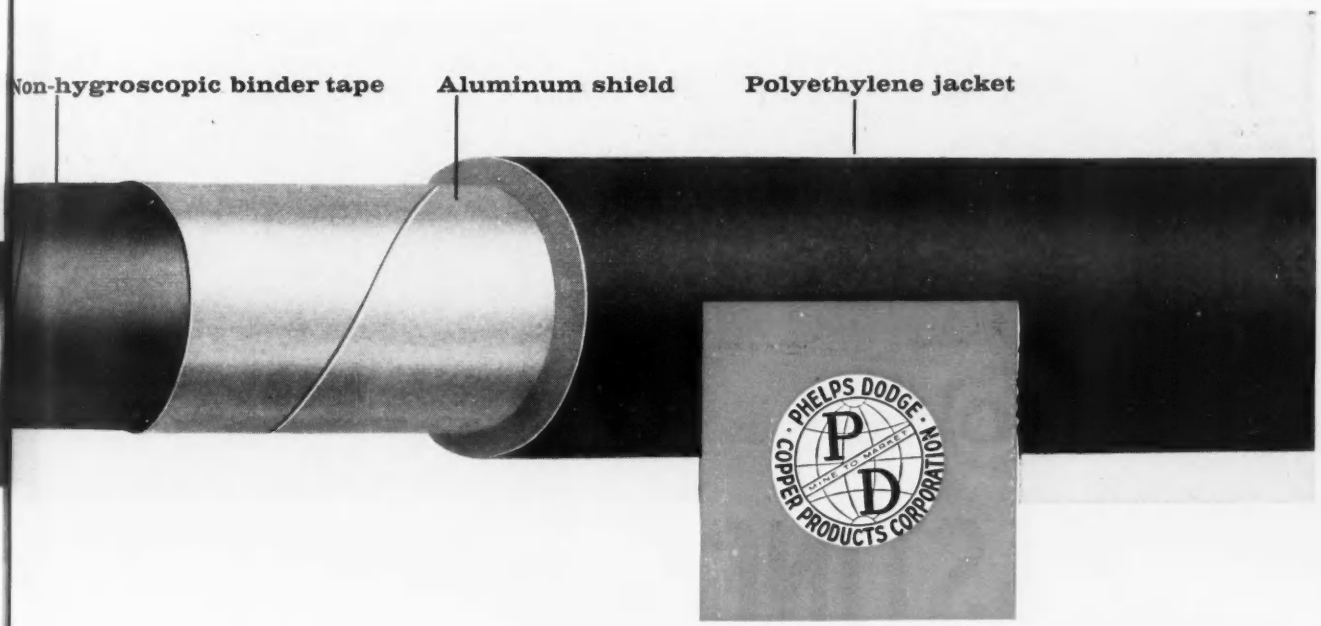
Self-Supporting Telephone Cable
Rural and Urban Distribution Telephone Wire
Interior Telephone Cable
Paper-Insulated Lead-Sheathed Telephone Cable
Rubber-Insulated Lead-Sheathed Telephone Cable
PD-Tel Wire

"FIRST FOR LASTING QUALITY—FROM MINE TO MARKET

'MINE-TO-MARKET" LINE...

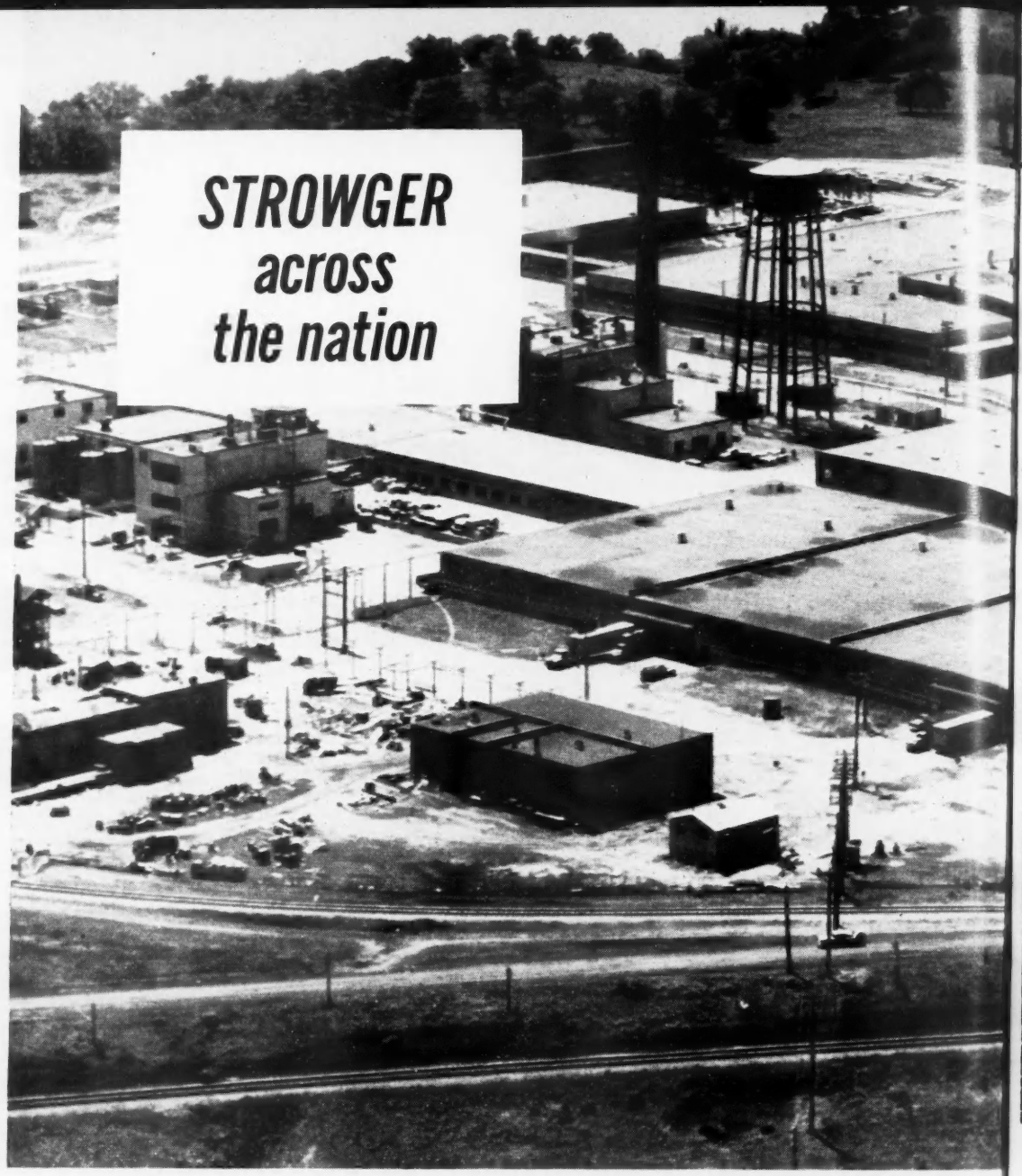
- Soft annealed copper conductors of highest grade copper from Phelps Dodge's own open pit mines.
- Highest quality polyethylene compounds for insulation and jackets assured by top grade materials and Phelps Dodge's vast experience in the plastic wire and cable field.
- Unique "lay pattern" that virtually engineers cross talk right out of the cable.
- Electrically continuous aluminum shielding tape.
- Special non-hygroscopic binder tape of laminated rubber and Mylar* that provides superior dielectric strength between core and shield, extra mechanical protection to the cabled assembly.

**Mylar—Du Pont's polyester film.*



PHELPS DODGE COPPER PRODUCTS CORPORATION

SALES OFFICES: Atlanta, Birmingham, Ala., Cambridge, Mass., Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Detroit, Fort Wayne, Greensboro, N. C., Houston, Indianapolis, Jacksonville, Kansas City, Mo., Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N. Y., San Francisco, St. Louis, Seattle, Washington, D. C.



3-M PLANT (Minnesota Mining & Manufacturing Company shown at right) typifies the growth of industry in the Hastings area. Nearby is St. Paul Ammonia Products, Inc., Liquid Carbonic Corp., and the Great Northern Oil Company. To assure room for future growth, options are being taken by manufacturers on more farmlands.

HASTINGS, MINNESOTA

Manufacturers choose this century-old town on the Mississippi as the site for industrial development and shipping operations

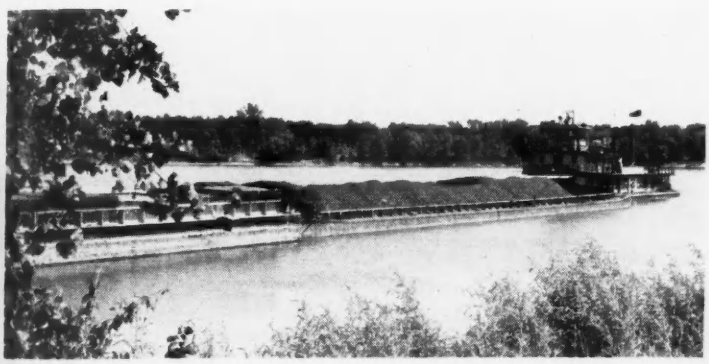
On the Mississippi River, 20 miles southeast of the Twin Cities, is fast-growing Hastings, Minnesota. 1958 marked the 100th birthday of this community, whose colorful history is enhanced by its location on Old Man River. Until three years ago, Hastings was an agricultural and dairy center. Then, a new chapter began: *industrialization.*

On the outskirts of Hastings, a 6,000 acre industrial development is under way. Leading manufacturers have moved in to capitalize on Hastings' location on the Mississippi, its natural harbor, its fine rail, highway and air transportation facilities. With the boom, population has climbed to 7,300 and new home construction has set a record pace.

Hastings is served by Pioneer Telephone Company. Each day, Automatic Electric step-by-step switches work behind the scenes to give dependable, low-cost telephone service. Yes, Hastings is another success story of STROWGER ACROSS THE NATION.

GATEWAY TO HASTINGS is this magnificent bridge, which spans the Mississippi. Beautiful homes high above the river banks command a scenic view of the bridge and Hastings business district. Residents spend much of their leisure time boating and fishing a few miles from their homes.

PIONEER TELEPHONE COMPANY has 48 exchanges in Minnesota. Shown here is the Hastings exchange and business office. Hastings, which has a total of 1,430 lines, was converted to dial in October, 1957. Pioneer chose Strowger Automatic to make this conversion.



HEAVY BARGE TRAFFIC regularly passes through the Hastings locks, heading southward to the Illinois and Ohio rivers and the Gulf of Mexico. The Mississippi is the main shipping artery for industry throughout the Hastings area.

H. R. BOLLINGER (left), vice-president and general manager, Pioneer Telephone Company, describes growth of Hastings exchange since conversion to dial. The two interested listeners are Art Krueger (center), A. E. representative; and George Summerscales, Jr., A. E. district manager.

AUTOMATIC ELECTRIC

NORTHLAKE, ILLINOIS

Subsidiary of **GENERAL TELEPHONE**

Let's Make All These Ex

Kellogg's Color Campaign Works With You and For You To Help Sell More Color Phones In Your Community

IT'S A FACT: color phones help convince subscribers of the need for extension phones.

RESULTS: greater revenue for you, greater satisfaction for your subscriber, because the 15 smart new Kellogg K-500 colors brighten up any decor.

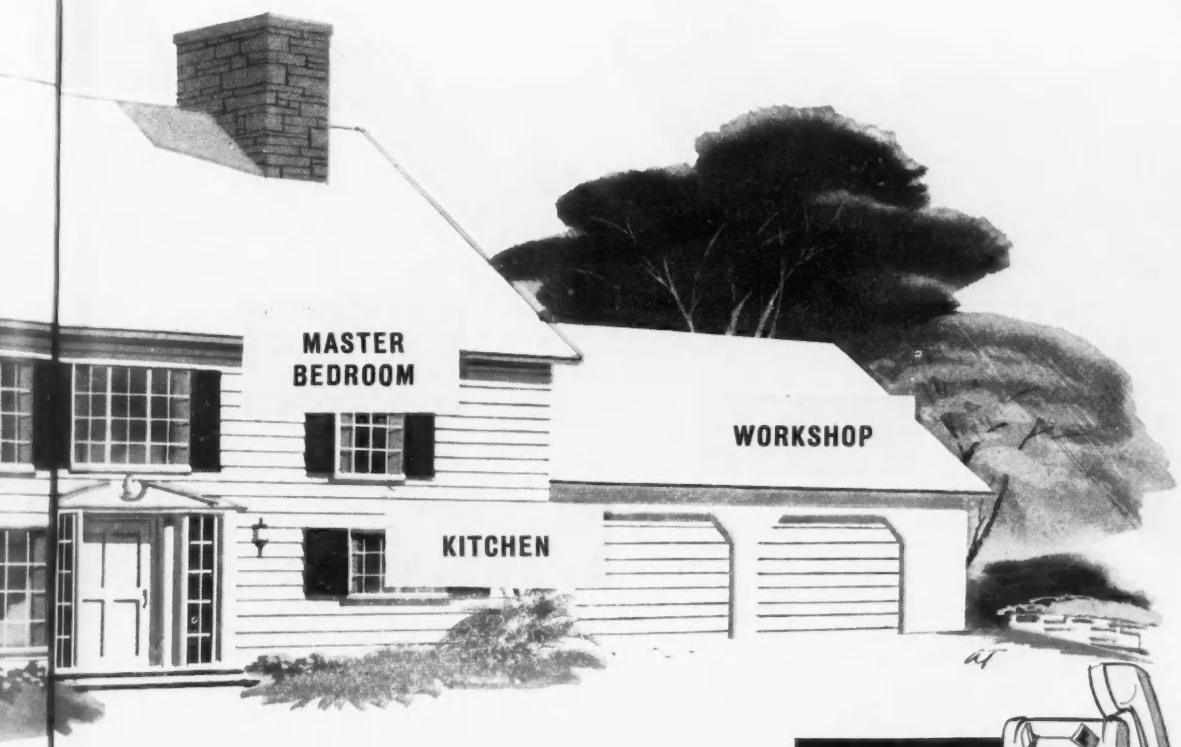
And one extension leads to another: a convenient wall phone in the kitchen means dad will want one for the workshop; an extension in the bedroom leads to one in the guest room. Remember to suggest color phones as gifts—it's a new, original idea, and they're always welcome!

Kellogg is helping you sell more color phones through its widely-promoted color campaign. The theme – "Brighten Life At Home With Color Phones"—is being brought to the attention of people everywhere through advertising in national magazines, local newspapers, direct mail and other powerful sales promotion tools.

Your Kellogg sales representative will be glad to explain this campaign to you and show you how it can be brought into operation in your community.

KELLOGG Switchboard & Supply Company
6650 S. Cicero Avenue, Chicago 38, Ill.
Communications Division of
International Telephone & Telegraph Corporation

Extensions Color Phones!



15 Decorative Colors!

RED • YELLOW • GREEN • BLUE • BEIGE • GRAY • BROWN
IVORY • TURQUOISE • ROSE PINK • AQUA BLUE • WHITE
LIGHT BEIGE • LIGHT GRAY • BLACK

Demonstrate how the handset of the K-554 can be hung on the side without breaking the circuit!

KELLOGG Communications Division of ITT
CHICAGO, ILLINOIS

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MAyfair 1-4418
TWX KC KAN 1055

MINNESOTA
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Minneapolis 16, Minn.
West 9-6715
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Passaic, New Jersey
PRescott 9-3610
TWX PAS 1067

OHIO
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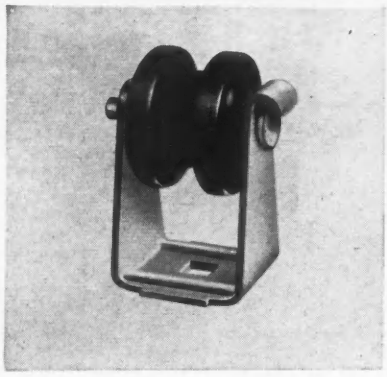
Mansfield, Ohio
LAfayette 4-6511
TWX MANS 0132

TEXAS
1515 Turtle Creek Blvd.
Dallas 7, Texas
RIverside 7-5191
TWX DL 02

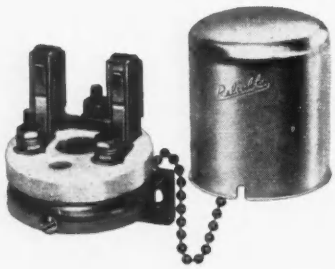
EXPORT—165 Prospect Street, Passaic, New Jersey, PRescott 9-3610, TWX PAS 1067

Kellogg carries your line

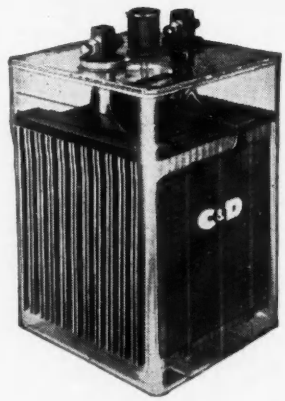


Terminal Bracket—For dead-ending or terminal use on crossarms. No cotter pins, lock washers, or nuts necessary to hold the insulator spool permanently in place. Both pins and brackets are hot-dip galvanized. Requires carriage or machine bolts for mounting. A. B. CHANCE COMPANY.

The Cook PLX Cable Terminal is designed for use on plastic cable that is looped through the terminal without cutting the wires and the desired pairs terminated for distribution. Protection is optional. When ordering, specify cable diameter for correct size grommets. COOK ELECTRIC COMPANY.



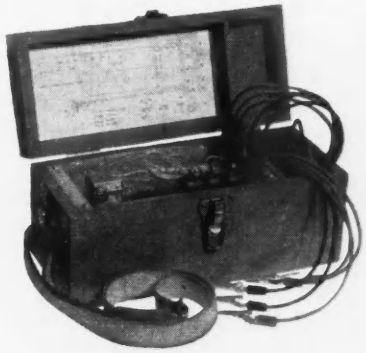
Described as a "buffer," the Reliable No. 451 Single Pair Protector is designed to drain lightning and static voltages from open wires and long drop wires that are connected to cable. Also used to protect loudspeakers, coils, filters, and unprotected cable terminals. RELIABLE ELECTRIC COMPANY.



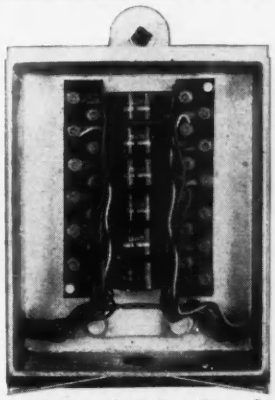
Extra-Long Life!—The suspended and supported plate construction is an exclusive feature of C&D BATTERIES. Choose C&D PlastiCal (lead-calcium grid) for life expectancy of 25 years . . . for 14 years expectancy, specify PlastiCell (high tensile lead alloy grids). Made by C&D BATTERIES, INC.

It is good business to have supplies available when you need them so that your linemen are not held up. But you do not have to tie up a large amount of capital. Kellogg will back up your inventory for you. Many operating companies rely on Kellogg to do this because Kellogg devotes more warehouse space to serving the Independent Telephone Industry than anyone else in the business The supplies are in stock waiting for you. Shipments are prompt. You get the supplies you want, *when* you want them!

supply inventories for you



Splicer's Tone is a versatile instrument for the splicer. It has two tone circuits, a buzzer circuit, and a battery circuit for talking. Compact, only 12" long, 5" wide, 7" high, comes with handy carrying strap. Made by CABLE SPINNING EQUIPMENT COMPANY.



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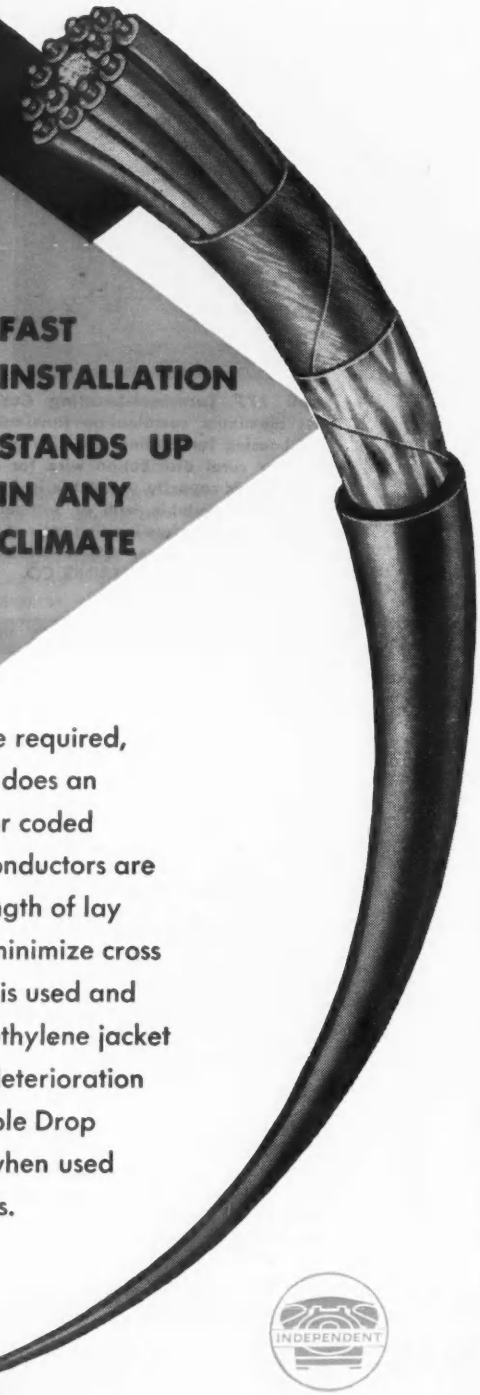

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ARKANSAS Telephone Association, Hot Springs, Arlington Hotel, Sept. 15-16, 1958.

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WEST VIRGINIA Telephone Association, Blackwater Lodge, Davis, W. Va., Sept. 24-25, 1958.

NORTH CAROLINA Telephone Association, Carolina Hotel, Pinehurst, October 6-7, 1958.

UNITED STATES Independent Telephone Association, National Convention, Conrad Hilton Hotel, Chicago, Oct. 12, 13, 14, 15, 1958.

VIRGINIA Independent Telephone Association, Roanoke Hotel, Roanoke, Oct. 30-31, 1958.

SOUTH CAROLINA Telephone Association, Clemson House, Clemson, Nov. 5-6, 1958.

OKLAHOMA Telephone Association, Huckins Hotel, Oklahoma City, Nov. 5-6, 1958.

ALABAMA - MISS. Telephone Association, Thomas Jefferson Hotel, Birmingham, Ala., Nov. 10-11, 1958.

GEORGIA Telephone Association, Gen'l Oglethorpe Hotel, Savannah, Nov. 12-13, 1958.

FLORIDA Telephone Association, Soreno Hotel, St. Petersburg, Dec. 4-5, 1958.

TEXAS Telephone Association, Hilton Hotel, San Antonio, March 2-4, 1959.

KENTUCKY Telephone Association, Phoenix Hotel, Lexington, March 3, 1959.

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Washington NEWSLETTER

By ROLAND DAVIES and FRED HENCK*

House Government Operations Committee halts plan to transfer part of excise tax on local telephone service to the states . . . CWA opposes new NLRB jurisdictional standards . . . AT&T supports USITA petition requesting allocation of 840-890 mc band to common carrier fixed service.

Excise Tax Transfer Blocked

THE VIEW often expressed here, and indicated by developments of the past several months, that Congress would never endorse the proposal that part of the excise tax on local telephone service should be transferred to the states, was confirmed in the absolute degree by a report made public by the House Government Operations Committee. Not only did the committee scotch the suggestion in the session of Congress just ended, but it apparently put the blocks to the proposal for a long time to come.

The proposal that part of the excise tax on local telephone service be transferred to the states to help finance programs now supported by federal grants but which would also be shifted to state responsibility was described as "an intriguing idea," but at the same time as "impracticable" by the House group in its annual report.

Commenting on the recommendations of a Federal-State Joint Action Committee which were incorporated in administration-backed legislation, the House committee stated:

"Attention has been given in recent years to the possibility of exchanging some federally occupied tax sources for state assumption of full responsibility in connection with certain grant programs. Most recently, the Joint Federal-State Action Committee recommended, in December, 1957, that the states be permitted to collect up to 40% of the present federal tax on local telephone services as a substitute for existing federal grants for vocational education and waste-treatment plant construction.

"Although an intriguing idea, which the subcommittee had hoped the facts would sustain, the exchange of a specific tax for a grant, or a group of grants, appears to be impracticable for two basic reasons:

"1. Such an exchange would adversely affect the lower income states, which would lose far more in grants than they would gain in tax revenue. Many of the higher income states, on the other hand, would obtain substantially more revenue than needed to carry on the activities concerned . . .

"2. While grants purport to assist the states in supporting specific activities of national concern, it appears that many states would be unable or unwilling to carry on these functions alone. The result would likely be very uneven, with some states discontinuing or impairing programs because of their inability or unwillingness to impose the necessary taxes."

The idea to transfer part of the excise tax on local telephone service originated with the joint action group named at the 1957 Governors' Conference. Composed of state governors and cabinet-level federal officials, the committee, during meetings in the fall of last year, drafted a program that provided for discontinuing the federal grants for vocational education and grants for construction of waste treatment facilities. Each of these calls for a $50,000,000 annual appropriation.

So that the states could assume responsibility for these programs, the 10% tax on local telephone service would have been reduced to 6%, and "to accomplish the transition a tax credit device would be used for the first five years," according to a letter President Eisenhower sent to Capitol Hill in which he proposed enactment of the transfer legislation.

Eventually, the federal excise tax on the local telephone service would have been reduced to 6%, and the states were expected to adopt legislation providing for a tax at that level. At the end of five years, the federal tax would have dropped to 6%, whether or not the states had imposed taxes of their own.

Telephone users would have continued to pay a 10% total levy, and the telephone companies, acting as tax collectors, would have deducted the state tax from the amount remitted to the federal government.

The House committee pointed out that hearings have indicated "none of the 10 lowest income states would obtain sufficient revenues from a 4% tax on local telephone service to replace the grants recommended for discontinuance.

"In all," the report continued, "20 of the 48 states would be financial disadvantaged by the Joint Committee's transfer plan, despite the fact that it would result in a net loss of more than $50,000,000 a year for the federal government. Even if the states were permitted to collect the full amount of the 10% tax on local telephone service, an arrangement which

CONTRACTORS—
Management's Decision

By PAUL M. HENKELS

Recession Over— Expansion Ahead?

Now that the recession is over and business is on the upturn, it might be well to reappraise labor policies from the management point of view.

Many manufacturing firms consider labor policy as union versus management and concern themselves with contracts embodying wages, fringes, hirings, firings, seniority, etc. However, many other businesses, including utilities, can consider another factor — Contract Labor.

During the recession, we saw great emphasis on cost control. That well-publicized "close second look" was given to everything. In the first stages of the recession, capital expenditures were cut through reduced inventories, postponement of office improvements and curtailment of expansion programs. In the second stage, operating expenses were cut through such measures as reduced maintenance and personnel layoffs. Many companies that were used to years of almost uninterrupted expansion were forced to lay off people for the first time since Korea. Numbered among these were many telephone utilities.

Now things are picking up again. Laid off personnel are being rehired. Soon, all that were laid off and want to come back will be back. More will then be needed. How many? For how long? Will it be continuous or temporary? This brings us around to basic policy decisions.

Utilities As Citizens

The utility is *the* solid citizen of the community. It renders a useful service. It employs good people. It pays good wages. It contributes leaders to community projects. It furnishes steady employment. It pays taxes. It makes a profit.

Security is a prime attraction to prospective telephone company employees. A job with the company is always a steady job. How then to handle cyclical work loads without jeopardizing the company's reputation as an employer?

Enter the Contractor

Many companies today are using contractors as a regular factor in their operations. By doing so, they reap many benefits. Chief among these are stabilized employment, reduced unemployment insurance rates, less turnover. The reduction in turnover has several interesting aspects. By taking the pressure off the personnel department to man a particular situation, better screening can be given prospective employees. Better screening means higher quality men, better suited to the job. Since approximately 85% of every operating expense dollar goes to personnel, screening and turnover become very important operating considerations.

The Union Objects

Does the union object to the employment of contractors? Occasionally, but not as often as supposed. And it is our experience that these objections are generally not as strenuous as feared. Proper selling by progressive management can retain managements' prerogative to use contractors. Steady employment and qualified help are the main selling points.

A Labor Policy

Therefore, in the coming expansion, the lessons of the past recession might well be reviewed in the establishment of a broad labor policy. We are convinced that contractors should have a place in that policy. The soundness of economy, flexibility and stability point this out. We naturally feel that when contractors are considered, Henkels & McCoy should be among those considered. May we discuss this further with you? Henkels & McCoy, 6100 North 20th Street, Philadelphia 38, Pa., VIctor 3-7000 and 1800 Johnson Street, Elkhart, Indiana, 2-5650 and 2-8882.

Advertisement

(Continued from page 34)

would reduce federal revenues by about $370,000,000 a year, several states would still be unable to offset fully the loss of federal grants for vocational education and waste-treatment plant construction from this tax source."

The subcommittee also made the pointed observation that it "regards as unsound the idea that the federal government can vacate particular tax fields and thereby automatically create revenues for the states or municipalities. The availability of any tax field as a practical source of state and local revenue depends, among other factors, on the distribution of the property or service that is subject to tax, the willingness or legal authority of legislative bodies to impose a given tax, and the efficiency with which the tax can be collected. While it is desirable that the federal government should avoid preempting tax fields that are not essential for financing its activities and which can be utilized effectively by other levels of government, this principle is separate and distinct from the concept of giving up particular tax sources as a practical substitute for federal grants.

"It is imperative . . . that the federal government do everything possible to promote a favorable climate for the proper functioning of the other levels of government. This includes making available to the states and localities those revenue sources that are not of primary importance to the federal government and which are well adapted to state and local use. Such action should be taken independently of federal decisions concerning particular grants programs — a matter to be determined in each case on its merits."

CWA Opposes New NLRB Sandards

THE COMMUNICATIONS Workers of America has told the National Labor Relations Board that the union is strongly opposed to the revised jurisdictional standards announced by the board recently as they affect the telephone industry.

In announcing its new standards, the NLRB said that it would exercise its jurisdiction in the communications industry where the gross volume of the company is $250,000, rather than the $200,000 level which had been in effect since late 1954.

In a letter to NLRB Board Chairman Boyd Leedom, CWA President Joseph A. Beirne commented that the NLRB had indicated that its proposed changes were being made "so that more individual labor organizations and employers may invoke the rights and protections afforded by the statute." The CWA President declared that the Board "would be acting most arbitrarily and in direct opposition to its own stated purpose for revising these standards, if it were to raise the dollar volume test in the communications field. It would thus expand the 'no-man's land' area in this field, rather than reducing it in accordance with the Supreme Court's suggestion . . ."

According to the CWA President, of the approximately 4000 Independent telephone companies in the United States, there are "at the very most no more than 100" which meet the present $200,000 standard and even fewer would meet the $250,000 standard. "Hence, the Board intends to deprive many more employers and more employes in the communications industry of the rights and protections afforded them by statute."

Urging that the standard for the communications industry be set "substantially below" the $200,000 figure, Mr. Beirne suggested that "as a step in the right direction the standard for the communications industry should be set at a figure no greater than $100,000 gross volume, and that the Board ultimately do away with its jurisdictional standards altogether."

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WE NEED TO CHECK LABOR MONOPOLIES TO HELP CURB INFLATION...
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AT&T Supports USITA Petition on 840-890 mc Band

SUPPORT for the petition of the US Independent Telephone Association to the FCC, requesting allocation of the 840-890 megacycle band to the common carrier fixed service to replace 890-940 mc, has been registered with the Commission by the American Telephone & Telegraph Co.

"It is imperative," AT&T declared, that some suitable alternative to 890-940 mc. which has been reallocated by the FCC to radiopositioning service subject to ISM (industrial, scientific, and medical) operations, be made available. The importance of this area of the spectrum to common carriers was fully outlined to the Commission in its hearings last year on microwave policy and allocations," AT&T stated.

There is no other frequency space available to common carrier fixed operations in the microwave spectrum below 3700 mc, except the 2450-2500 mc band, "which has less suitable propagation characteristics and is subject to extensive ISM use," AT&T added. Allocation of the 840-890 mc area, the upper part of the ultra high frequency television band, would "involve the least interference with existing services," it went on. As it had earlier in comments to the FCC, AT&T declared that the Commission's proposed alternatives to 890-940 mc — conditional allocation of 942-952 mc and shared use of 2110-2200 mc — are not adequate.

AT&T and Western Union File New TWX Tariffs

AMERICAN Telephone & Telegraph Co. and the Western Union Telegraph Co. have filed revised

Please turn to page 44

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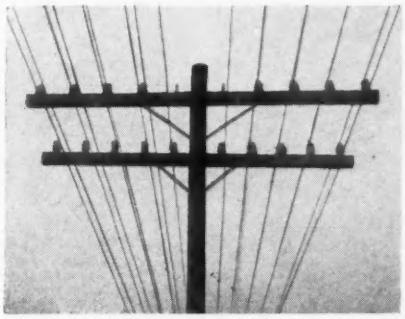

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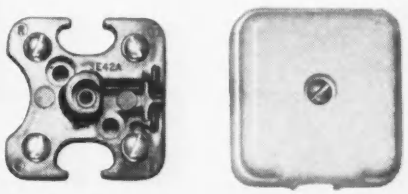

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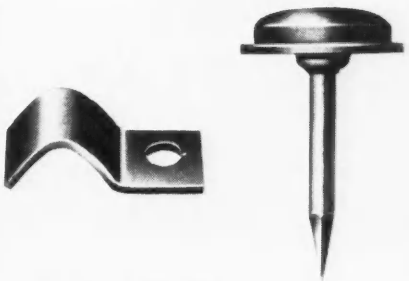

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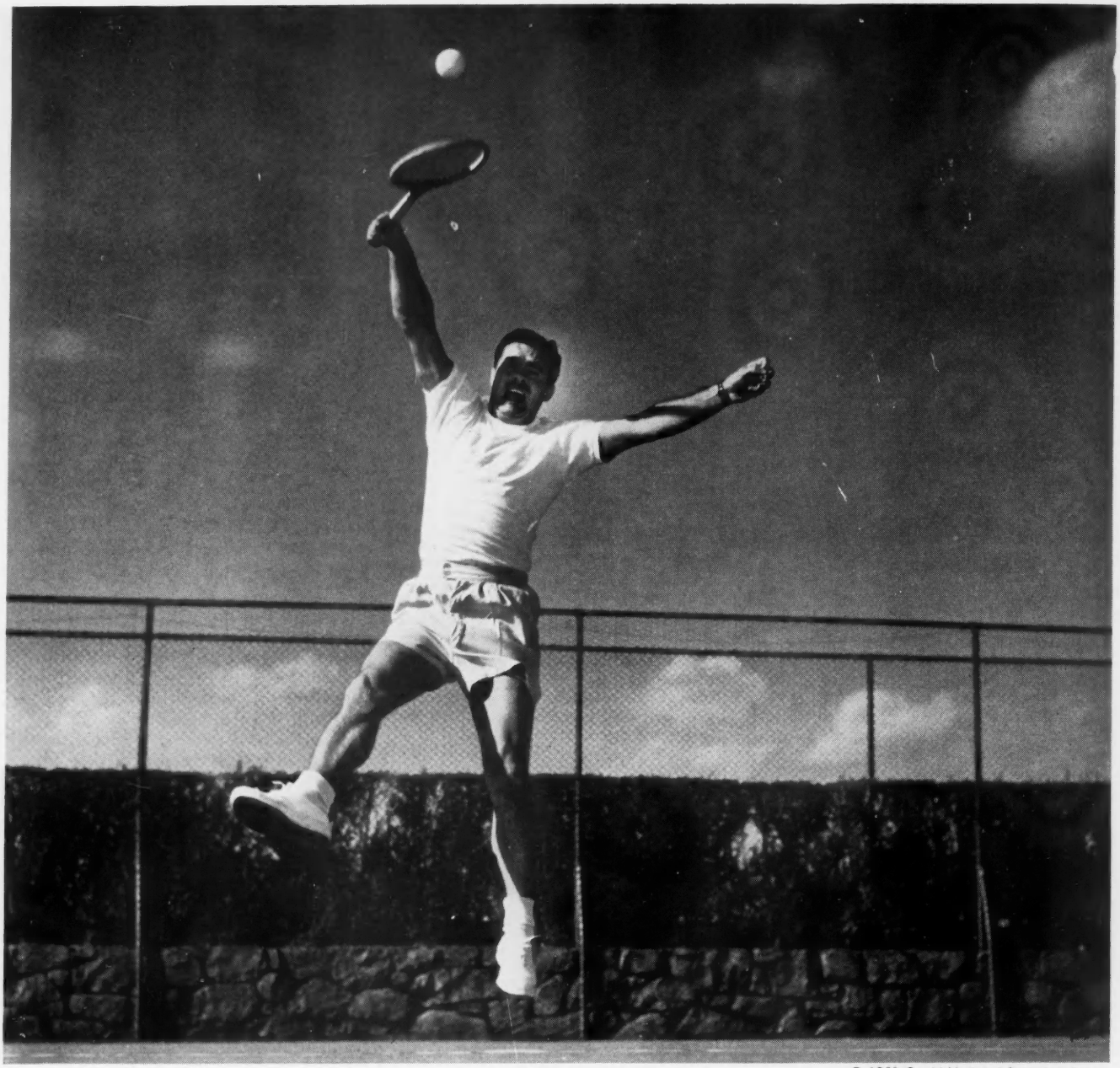

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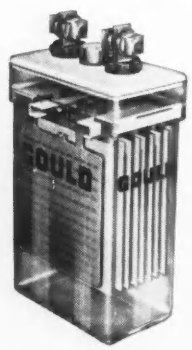

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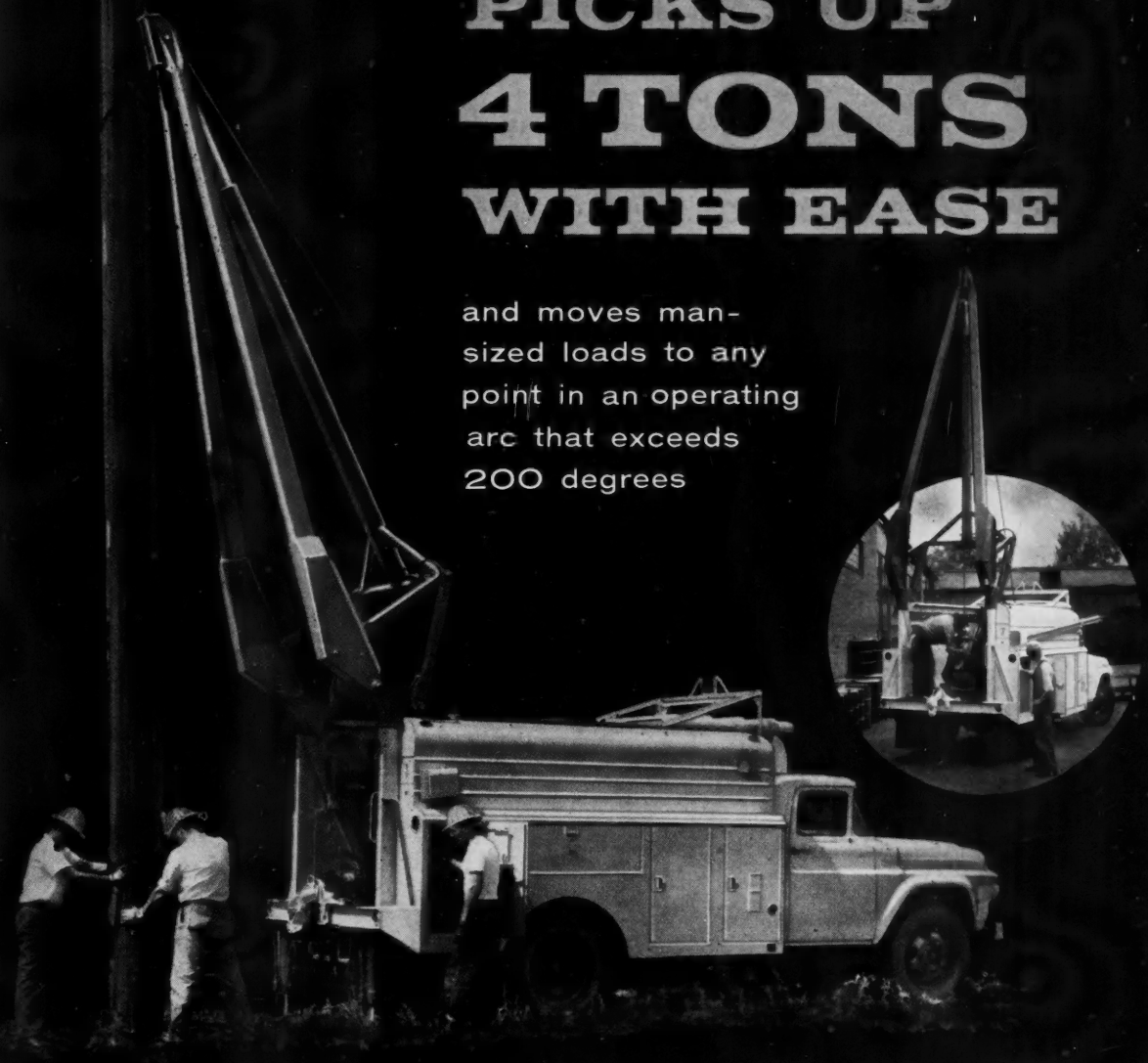

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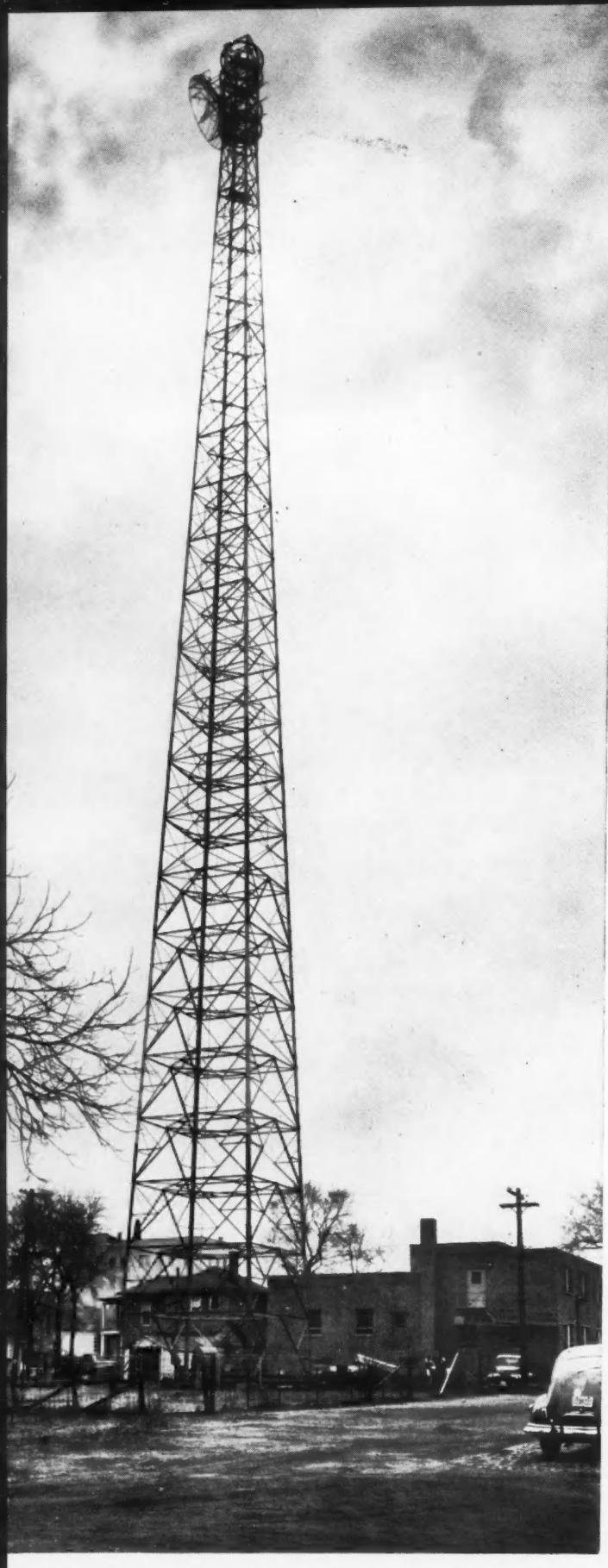

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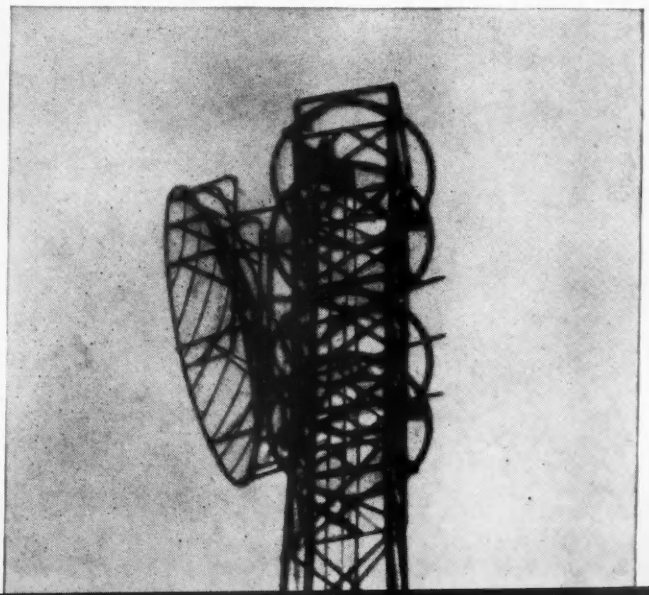

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These are only a few of the many reasons why you might want to try the modern twist in guying. Write for more information: Preformed Line Products Company, 5349 St. Clair Avenue, Cleveland 3, Ohio. Cable Address: Preformed-Cleveland.

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You can look up to

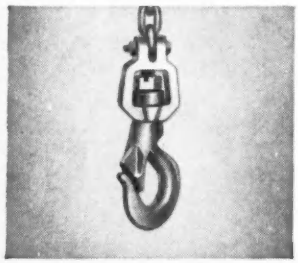
Preformed

Made in accordance with or for use under U. S. Patent No. 2,761,273; other patents issued and pending.

NOW...the "Lineman's Hoist" in a New TWO-TON Capacity

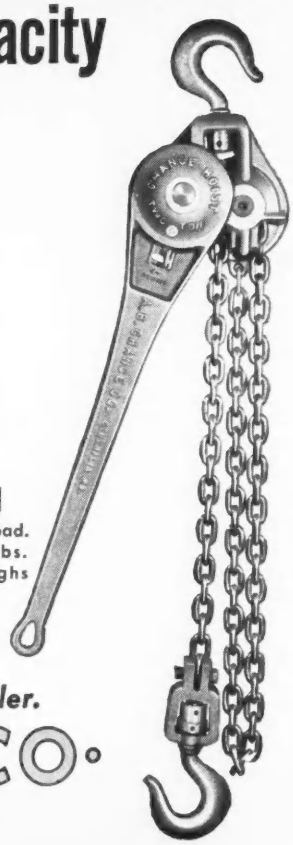
Now... a big brother to the popular Chance One-Ton Hoist... a Two-Ton Hoist with the same mechanical simplicity—plus precision gearing that doubles load capacity. Bigger, stronger, it has all the features linemen from coast to coast suggested in helping to develop the Chance One-Ton Hoist.

Easy-to-grip well-balanced handle operates from either side. "Free-wheeling" for ease in hooking to load. Automatic locking prevents accidental dropping of load. Chain won't bind or kink. Half or full link take up. Controls can be worked with gloves. 360° swivel hook with optional safety latch.



SAFETY LATCH HOOK
Optional at slight extra cost.

TWO-TON
Rated to lift a two-ton load. Proof-tested to 6000 lbs. before shipment. Weighs only 24 lbs.



Order from your line equipment wholesaler.

A·B·CHANCE CO·

GENERAL OFFICES: CENTRALIA, MO.
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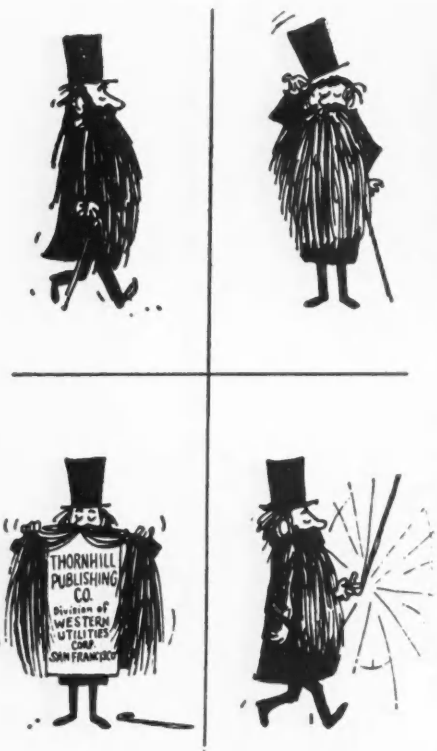
CT58-8A



A complete telephone directory publishing service

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Stewart TEST EQUIPMENT

COMMUNICATIONS UNIT Model M

- For Inter-Com Use
- Saves Time & Money
- Restores Service Faster

Unit enables point of work communication in checking and aligning exchange equipment. Transistor powered amplifier with combination transmitter-speaker, batteries and switching. Each unit monitors. Puts no D. C. on line. Output + 3 D B into line. — 12 D B from line provides sound output which can be heard from 20 to 30 feet. Has tip and sleeve jack for connection to line. With M471 Test Cord (600 ohm load) units may be operated through carrier equipment.

STEWART BROTHERS
Division of Instrument Laboratories
Chicago 10, Illinois

"Washington"

(Concluded from page 36)

tariffs for private line teletypewriter grade services with the FCC, to become effective Oct. 1.

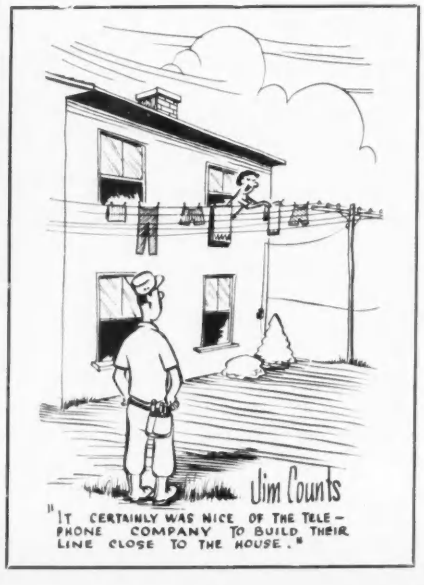
In both cases, the companies said that the proposed rates do not produce the level of earnings felt justified, and that the new schedules are designed to afford interim rate relief pending final disposition of the private line proceedings before the FCC.

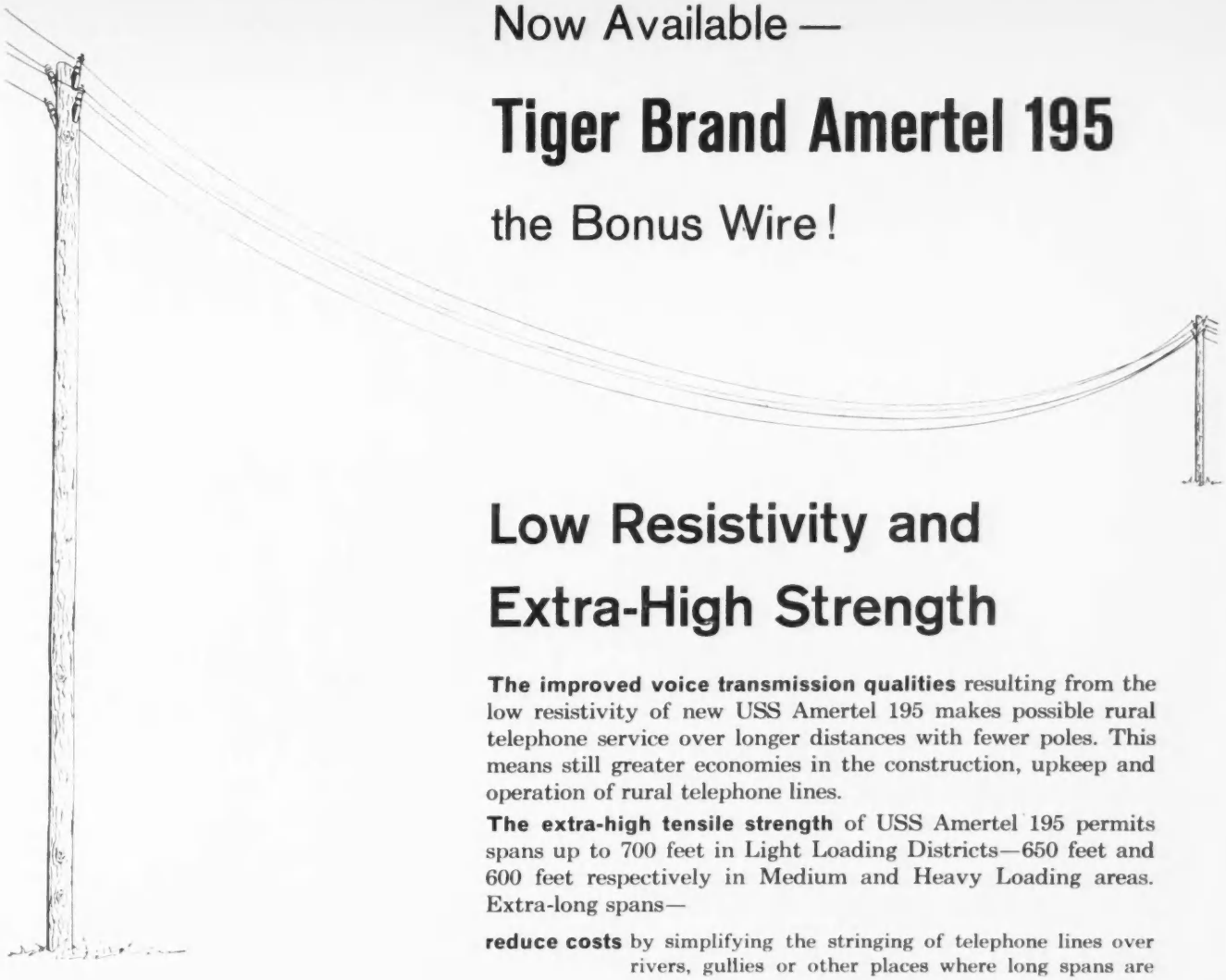
AT&T, declaring that earnings on private line teletypewriter service are now "at the confiscatory level of 1.7% on invested capital," pointed out that the new rates "still would be substantially lower than those in effect before World War II."

The new schedules, AT&T estimated, would result in net increases of about $11,000,000 a year. Western Union said the adjustments indicate a gross revenue boost of $7,693,000.

It was estimated that the AT&T proposals represent a 26% increase, compared with existing charges for interstate private line teletypewriter services. Western Union set its proposed increases at 23%.

In its filing, AT&T proposed increased charges, and a few decreases, for items of station equipment and switching and selective calling arrangements. It commented that "The cost evidence of record would support increases in charges considerably greater than those contained in this filing." — *By Roland Davies and Fred Henck, editors of "Telecommuncations Reports."*





Now Available —

Tiger Brand Amertel 195

the Bonus Wire!

Low Resistivity and Extra-High Strength

The improved voice transmission qualities resulting from the low resistivity of new USS Amertel 195 makes possible rural telephone service over longer distances with fewer poles. This means still greater economies in the construction, upkeep and operation of rural telephone lines.

The extra-high tensile strength of USS Amertel 195 permits spans up to 700 feet in Light Loading Districts—650 feet and 600 feet respectively in Medium and Heavy Loading areas. Extra-long spans—

reduce costs by simplifying the stringing of telephone lines over rivers, gullies or other places where long spans are necessary.

reduce costs by making it possible to string telephone lines on rural power lines without the use of intermediate supporting poles.

reduce costs by cutting down on the number of poles required, with subsequent savings in man-hours, hauling, hole digging and installation.

Because of the extra-high strength of USS Amertel 195, it performs well under heavy ice loads, keeping service interruptions to a minimum. Often ice-coated Amertel 195 will touch the ground in mid-span. While the wire is resting on the ground, the ice sheath serves as an insulator . . . service continues, uninterrupted. After the ice load is removed through melting, the wire will return to its position in the air.

New folder tells the full story on USS Amertel 195. Just off the press, this new folder gives full information on this outstanding new telephone wire. For a free copy, send your request to American Steel & Wire, Room 842, Rockefeller Building, Cleveland 13, Ohio.

USS, Tiger Brand and Amertel are registered trademarks

USS Amertel 195 Specifications

Size B.W.G.	No. 12
Nominal Diameter in Inches	0.109
Minimum Breaking Strength (Pounds)	1800
Resistance per Mile (Ohms) Maximum	38.8
Approximate Weight per Mile (Pounds)	170
Approximate Weight per Coil (Pounds)	160
Minimum Weight per Coil (Pounds)	144
Maximum Weight per Coil (Pounds)	176
Approximate Length per Coil (Feet)	4970
Minimum Length per Coil (Feet) Approximate	4470
Maximum Length per Coil (Feet) Approximate	5470

American Steel & Wire Division of USS **United States Steel**

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors • Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, Distributors Abroad

Ask The Man Who Installs It...

ANSONIA® Ankoseal®

Inside Wiring Cable

easier to handle and quicker to install

Yes, the man who installs key systems, talk back systems, etc., will quickly tell you: It's a pleasure to work with Ankoseal inside wiring cables!

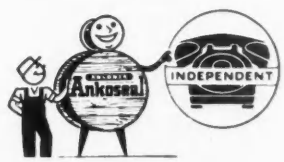
Ankoseal cables are easier to handle. They're lighter in weight, have greater flexibility due to smaller diameters. And they're cleaner to work with, because polyvinyl chloride jackets can't cause smudges or soil hands and clothes.

Installation is quicker—individual wires of Ankoseal cables are color-coded to industry standards and paired for instant identification. Non-breaking nylon rip cord simplifies stripping of the jacket.

It all adds up: Ankoseal cables are easier to handle, quicker to install, a better buy all around.

Ankoseal Inside Wiring Cables are promptly available in 6 to 76 pairs, 24 and 22 AWG copper conductors. Other sizes and pair counts made to your specifications.

Call your authorized telephone supply distributor and specify Ankoseal.



Leadership Through Quality and Service

THE ANSONIA WIRE & CABLE COMPANY

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344-8

UNITED TELEPHONE COMPANY OF INDIANA, INC., SPECIFIES *ANOTHER* C&D BATTERY INSTALLATION

Chief Engineer R. E. Daniel of United Telephone Co., Warsaw, Ind., left, discusses latest installation of C&D telephone batteries with C&D District Representative Arnold McPhee.

Why is second-largest independent telephone operating system in U.S. sold on C&D?

This C&D installation at the new Warsaw, Ind., exchange of United Telephone Company marks another location for C&D batteries in the nation's second-largest independent telephone system.

Why C&D? When queried, a United Telephone Company spokesman summed it up this way—

. . . good performance, good delivery, good service, and competitive price.

. . . all the advantages C&D batteries have to offer were *as presented* by the C&D sales and service representative when the company was first contacted about using C&D batteries. United Telephone Company, he adds, has found no discrepancies in the story.

. . . periodic checks and inspections from the manufacturer help the customer with his routine operation.

United Telephone Company is sold on the performance of C&D batteries to do the heavier-duty work for dial systems, for C&D supplies "engineered power" for telephone industry growth.

In addition to the big, rugged hard-rubber jars, C&D supplies (and pioneered) rugged, one-piece clear plastic cases—lightweight, shock-resistant, heat-resistant, and hermetically sealed.

PlastiCal® (lead-calcium) batteries—compact modern design for full-float telephone service—provide dependable standby power for *25 years*. By reducing the number of over-charges per year, thus eliminating much of the voluminous record-keeping, the *PlastiCal* battery provides substantial savings.

For growing telephone exchanges, the C&D PlastiCell (lead-antimony) battery provides full .266″ positive plates, triple insulation, and 14 years of life in full float service.

And, as an added feature, *PlastiCal* and *PlastiCell* batteries both give you the Saftee-Vent, which prevents accidental internal cell explosions and serves as a convenient funnel for filling or testing.

Next time you specify—specify C&D. Ask your nearby C&D representative . . . or your telephone equipment supplier.

Bulletins T-532 & T-533 carry full details. Why not send for copies for your file?

C&D BATTERIES, INC.
of Conshohocken, Pa. ... Attica, Ind.

Since 1906

Sales and Service Offices in Principal Cities from Coast to Coast

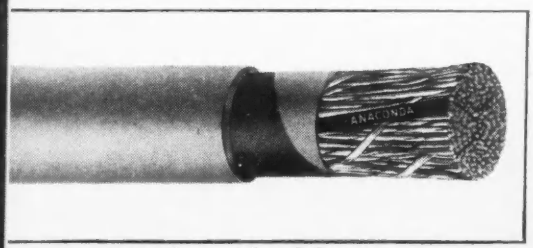
Manufacturers of Sigrex Clad ® Industrial Batteries • PLASTICELL and PLASTICAL ® Batteries for Communications, Control and Auxiliary Power • Producers of AutoReg* Silicon Rectifier Chargers

*T.M.

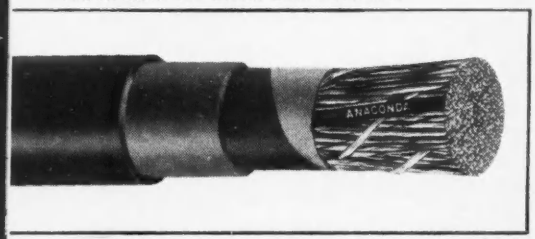
See the Man from Anaconda for Paper-lead Telephone

in the type and size you need . . .

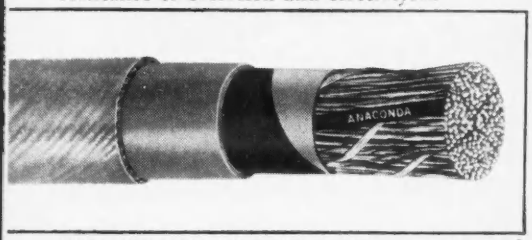
Choose Anaconda Paper-lead Telephone Cable in the type you need.



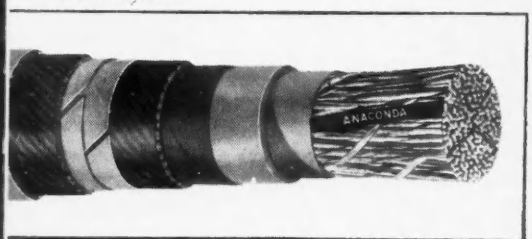
PAPER-LEAD for aerial and duct use.



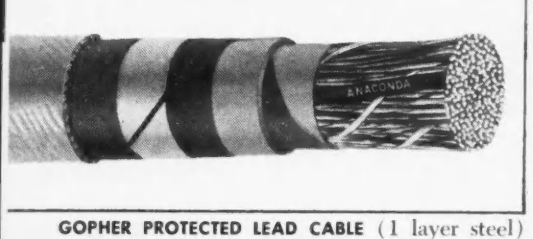
POLYETHYLENE PROTECTED LEAD CABLE offers high resistance to corrosion and electrolysis.



JUTE PROTECTED LEAD CABLE resists corrosion and electrolysis.



BURIED TAPE ARMORED LEAD CABLE (2 layer steel) for areas subjected to low-frequency induction from nearby power lines.



GOPHER PROTECTED LEAD CABLE (1 layer steel) direct burial cable where mechanical protection is needed.

ANACONDA PAPER-LEAD TELEPHONE CABLE being installed near Harold, Kentucky.

Cable from 6 to 2121 pairs—

. . . when and where you need it!

Anaconda offers you everything you need in paper-lead telephone cable—produced in a new, modern plant devoted exclusively to telephone cable products. Telephone experienced personnel who understand your problems utilize the latest, most exacting quality control standards—to produce quality telephone cable. And order service is prompt and efficient wherever you are because of a national network of distributors, Anaconda sales offices, and mills.

Call your Anaconda distributor or the Man from Anaconda for your paper-lead telephone cable needs. Also—write for new Catalog DM-5771. Anaconda Wire & Cable Co., 25 Broadway, New York 4, N. Y.

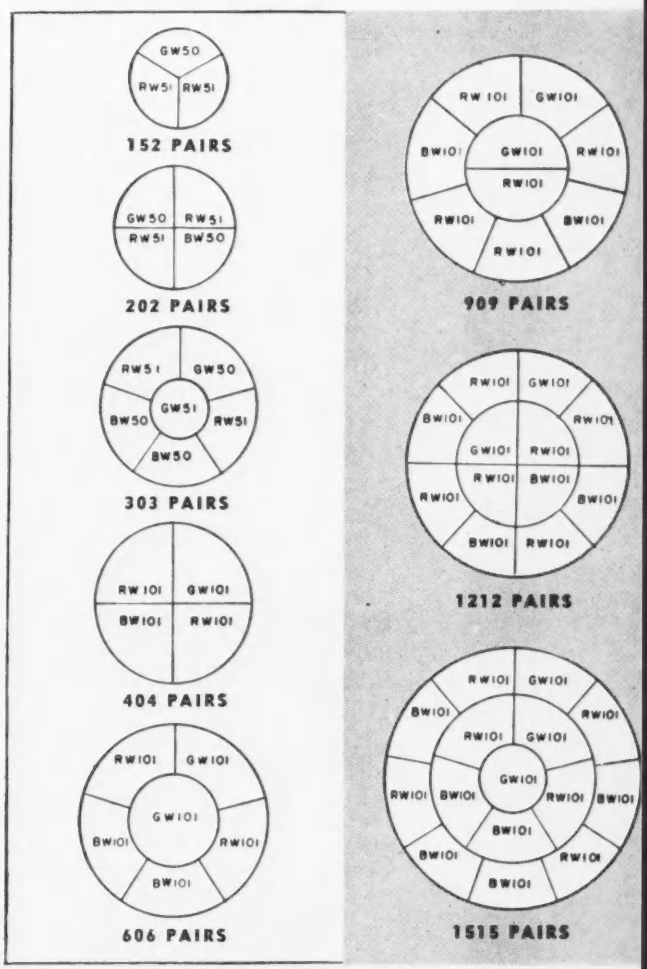
58221

Shown here is a typical unit construction for 152 pairs through 1515 pairs, No. 24 Awg. Following constructions also available:

No. 19 Awg	6 through	455	pairs
No. 22 Awg	11 "	909	"
No. 24 Awg	11 "	1515	"
No. 26 Awg	11 "	2121	"

The number in the assemblies denotes the number of pairs in the unit. The letters refer to the color of the outside pairs of the unit. GW, green-white; RW, red-white; BW, blue-white. The units are further distinguished by a color-coded binder string.

Choose Anaconda Paper-lead Telephone Cable in the size you need.



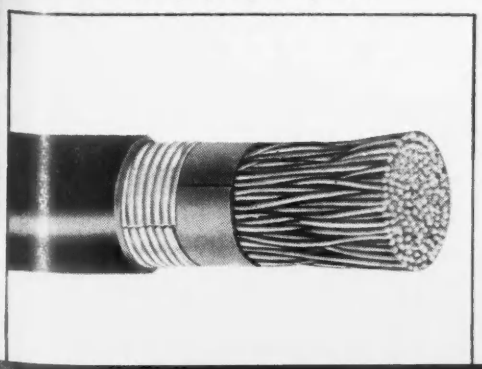
UNITED STATES INDEPENDENT TELEPHONE ASSOCIATION

PHONE THE MAN FROM ANACONDA®

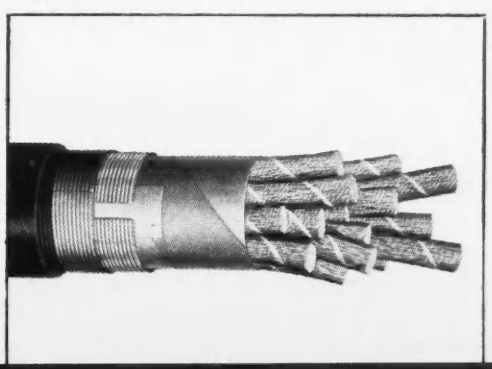
The Independent Manufacturer to the Independent Telephone Industry

FOR TELEPHONE CABLE

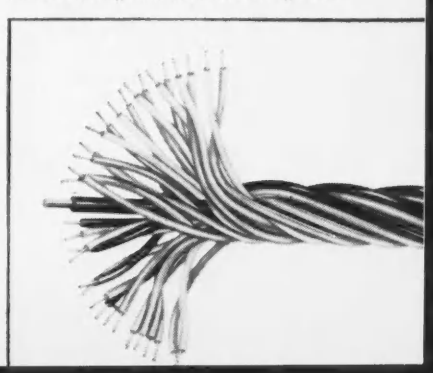
ALPETH—Polyethylene-insulated, low-resistance aluminum shield, polyethylene jacket.



STALPETH—Paper-insulated, aluminum shield, steel tape, polyethylene jacket.

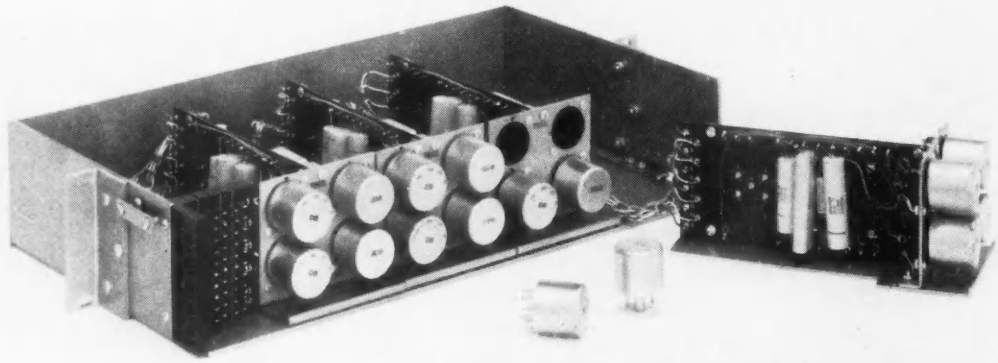


DISTRIBUTION WIRE—rural [#19], suburban [#22] and urban [#24].



Now Miniaturized! **Kellogg K-840**

4-Wire Terminating Equipment



Units can be extended from the shelf without interrupting service.

SAVES 75% IN SPACE! The new miniaturized K-840 four-wire terminating equipment now offers two big advantages. It meets the high balance requirements necessary for operation of high grade toll circuits, and it takes up only one-quarter of the space used by older equipment.

In addition, the new K-840 permits operation of signaling trunk circuits without affecting the balance of associated voice frequency circuits. Hence it is ideal for use in two-wire switching offices where a 27 db balance or better must be maintained.

The K-840 incorporates the most advanced design techniques, modern production methods and high-quality components to provide a nearly constant two-wire impedance across the voice frequency band. Four units in a shelf occupy only 3½" of vertical space on a 19" rack. A plug-in rotatable pad provides fine attenuation adjustments for losses in ¼ db. steps up to 1 db. A second pad is selected for coarse 1 db attenuation adjustments.

Ask your Kellogg representative to explain all the advantages of this versatile low cost equipment.

Kellogg Switchboard and Supply Company, 6650 South Cicero Ave., Chicago 38, Illinois. Communications Division of International Telephone and Telegraph Corporation.

KELLOGG Communications Division of IT&T
CHICAGO, ILLINOIS

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EXPORT—165 Prospect Street, Passaic, New Jersey, PRescott 9-3610, TWX PAS 1067

YOUR COMPANY IS INVITED

to Become an Associate Member of the

Independent Telephone Pioneer Assoc.

THE 4,569 members of the Independent telephone industry who proudly wear the industry's true badge of honor — the emblem of the Independent Telephone Pioneer Association (ITPA) — *cordially invite your company to become an associate member of the Pioneer organization.*

This invitation is extended to all *Independent telephone companies* and *manufacturing, supply or service companies* serving the telephone industry.

An Associate Membership in the Independent Telephone Pioneer Association joins your company with the veteran members of the industry — a group whose members have contributed much to the progress of telephone industry and helped produce today's modern communications systems.

Although exclusive and coveted, membership in the Independent Telephone Pioneer Association is not restricted to any special group.

Your company can give its support to the aims and goals of the Pioneer group by joining the ITPA as an Associate Member today.

Your company's application for an Associate Membership in the ITPA will receive the prompt attention of the ITPA Membership Committee.

PLEASE COMPLETE APPLICATION AND MAIL TODAY

Independent Telephone Pioneer Association

P.O. Box 1179 Springfield, Illinois

19....

APPLICATION FOR ASSOCIATE MEMBERSHIP

NAME OF COMPANY .....

TYPE OF BUSINESS .....

HEADQUARTERS .....

MAILING ADDRESS .....

ANNUAL DUES $.....

(Established by Associate Member—$5.00 to $50.00 Annually)

ANNUAL DUES MUST ACCOMPANY APPLICATION

Application subject to approval of Membership Committee

Signature .....

(Print or Type)

TE&M, 9-15-58

BEFORE YOU BUY *"Adequate Intercept"*

FOR THE INTERIM PERIOD

INVESTIGATE...

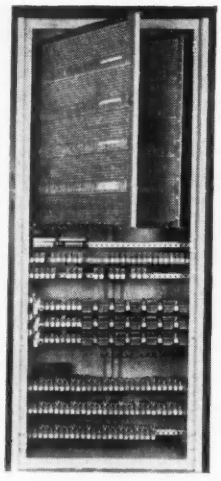
UNIVERSAL COMPUTER INTERCEPT

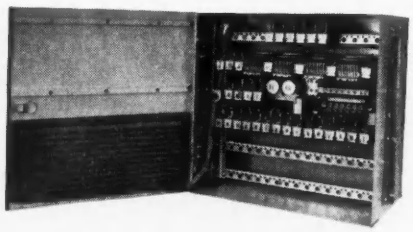
100% Intercept is

The Ultimate Goal of the Direct Distant Dialing Program

Universal 100% Toll Computer Intercept is the *only* intercept that can be installed in a toll center to serve outlying offices. May also be installed in end offices to serve subscribers.

Other ***UNIVERSAL*** Equipment:
Code-to-Selective **RINGING CONVERTER**
DIGIT ABSORBER
TRUNK DIGIT REGISTER





Cabinet 19" x 17" x 8" for rack or wall mounting, 60 lines TPL illustrated.

Cabinet 84" x 36" x 12", capacity 40,000 stations, TPL or TPS or any combination of both.

FOR FULL PARTICULARS
PLEASE WRITE DIRECT TO
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OR CONSULT YOUR DISTRIBUTOR
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EDITORIAL

"Crowd-Pleaser Decisions"

AS YOU HAVE probably noted from reports appearing in our "*Courts and Commissions*" section, 1958 may go into the record book as a big year for telephone rate increase requests.

However, it takes nothing more than a careful reading of "*Courts and Commissions*" to realize one fact. That fact concerns itself with decisions that indicate commission attitudes vary from state to state — that a rate increase approved by one state commission might be disapproved by another.

The real nub of such differences was commented upon a few years back by the Honourable H. Lester Hooker of the Virginia Commission when he said: "*The increasing of rates to utilities is not a decision that will bring loud public acclaim, but if it is the correct conclusion to be reached, it should, in all fairness, be the decision reached. It is unfortunate that some regulatory commissions keep their ears attuned to what may appear to be the most popular decision to make, rather than what is the fair and just conclusion to be reached from the facts of record . . . .*"

We will admit, as did Commissioner Hooker, that popular decisions are often 'crowd pleasers,' but, when it comes to decisions affecting rates charged by a telephone company for its services, we believe the decision should be based on facts that go far beyond the smiles or frowns the decision may cause.

As we see it, the commission that allows its decision on a rate increase application to be influenced by the popularity angle may issue a decision that will be a "*crowd pleaser*" but will be injurious to the company and in turn injurious to the public.

In our opinion the "crowd-pleaser" type of regulatory decision often deprives a company of the earnings it requires to do the telephone job it must do, and fails to properly recognize several principles under which utilities are regulated.

First, in some cases such decisions do not recognize the fact that commission regulation has a double responsibility: — the prevention of excessive earnings on the capital invested, and the guarantee that the earnings shall be sufficient to pay an adequate return on the capital after operations, maintenance of the property, and depreciation allowances have been made.

Secondly, such decisions often fail to recognize it is not inconsistent with the public interest that a utility company be permitted to earn enough to provide a reasonable surplus to enable the attraction of new capital as it is required.

And last, but by no means least, such decisions may ignore the fact that the telephone company must constantly be kept in financial and physical condition to attract new capital for expansions as required and for increasing and improving the services provided subscribers.

Today's records prove there is a definite need for recognition of such facts by some of the nation's regulatory bodies. In fact, we believe such recognition is a must if the nation's telephone companies are to take all the forward steps good earnings will allow.

We well realize the state regulatory commissions have responsibilities requiring much wisdom and foresight. Also, we know the approval of increased rates often requires political courage.

However, when all regulatory commissions show that courage we are sure two things will happen: (1) More commissions will be approving rates and earnings that will stimulate progress, increase incentives, and nourish innovation; and (2) more of the nation's telephone companies will be proving that ample profits will produce better goods and services at less cost to the consumer than lean profits could ever produce.

That's sort of a two-pronged job. In most cases, we believe, its accomplishment will be brought about when all commissions do as Commissioner Hooker suggested a few paragraphs back — "*. . . . if it is the correct conclusion to be reached it should in all fairness be the decision reached.*"

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WHY NORTH?

H. C. ("Red") Ryon has joined North Electric Company as Vice President in charge of the Telephone Division.

"Why North"?

Because—"Red" Ryon, one of the most widely known and respected executives in the Independent Telephone industry, knows—

North has a product line second to none. . .

- ***North Ericofon—most modern, most wanted telephone in the world***
- ***North AuTollizer®—the most reliable and economical toll ticketing***
- ***North Restricter—only proven restricter in the industry***
- ***North Crossbar—most advanced switching system in the world***
- ***North Carrier—"quickest pay-out" equipment in the field***
- ***North has a record of service and reliability since 1884***

In identifying himself and his future with North, "Red" Ryon is further strengthening the progressive management team that is already being recognized as

THE MOST DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

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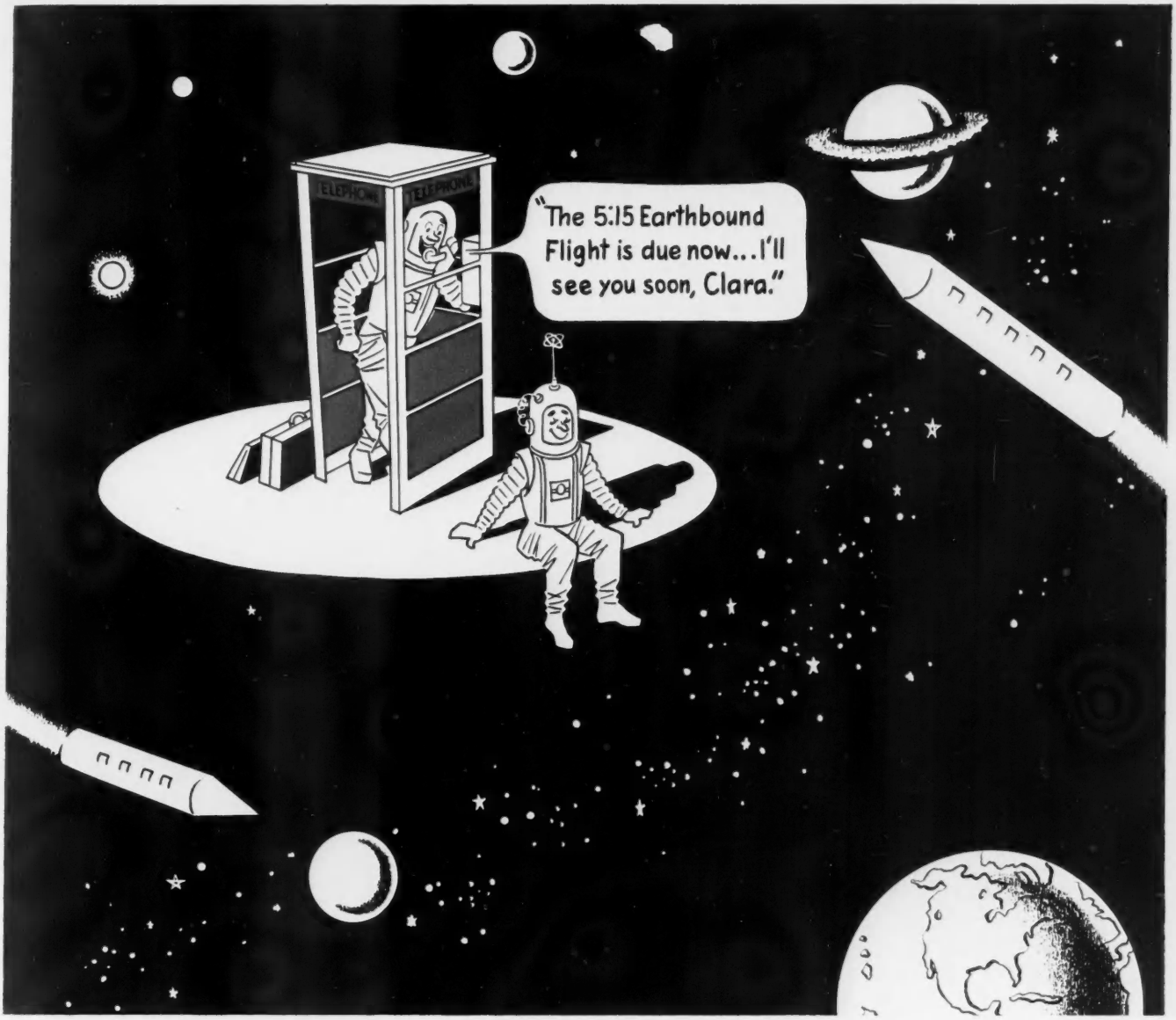

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3. **Four-channel tape call data permits faster billing!** Call data is recorded on four-channel tape. This permits high-speed, low-cost machine billing. Five channel tape also available.

...another reason why Men Choose Strowger!

Automatic toll ticketing is an important feature to the man who is selecting central office equipment. He knows that the system he buys today may have to handle a large volume of toll service tomorrow. That's why so many telephone men choose Strowger Automatic. The simple circuits and unitized construction of Strowger enable it to be adapted quickly and economically to provide automatic toll ticketing. And—Strowger ticketing equipment works directly into accounting machines without converters.

ASK YOUR A. E. REPRESENTATIVE for further details! He'll be glad to show you how automatic toll ticketing—as well as the other modern features of Strowger—will be important to you tomorrow. *Write Automatic Electric Sales Corporation, Northlake, Illinois. Or, call Fillmore 5-7111. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.*

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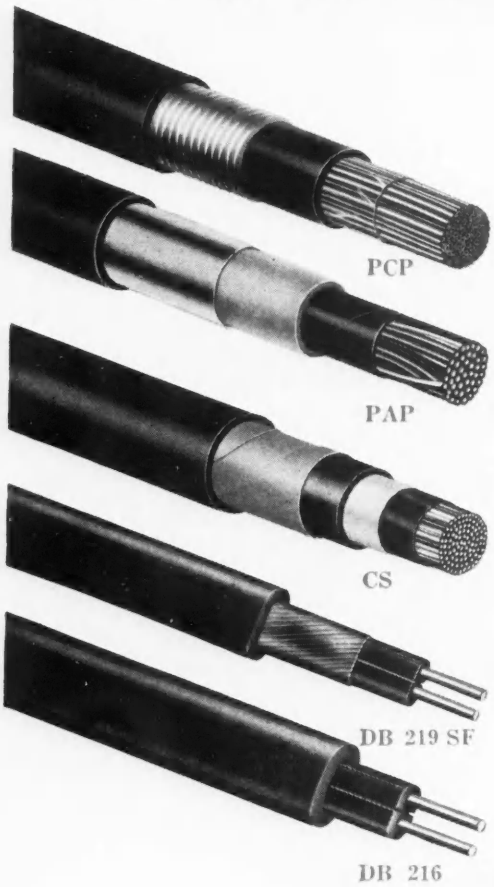

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Among SUPERIOR'S various types you are sure to find the cables to fit your requirements.

For double-jacketed cables with from 6 to 202 pairs in 19, 22 and 24 gauge sizes, all fully color-coded to the ultimate standard of the industry . . . choose

SUPERIOR PCP with a 5 mil longitudinal copper shield, or

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For two-conductor direct burial wire choose

SUPERIOR DB 219 SF or DB 216 SF with high strength flat steel serving flooded for corrosion protection, DB 219 S or DB 216 S with flat steel serving only, or DB 216 without armor.

All conductors are copper with polyethylene insulation in both wire and cable. Cable jackets are polyethylene, direct burial wire jackets are polyvinyl chloride.

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3209

GOOD judgement is necessary to avoid carrying maintenance routines to the point where costs become excessive for the results obtained.

More Important Every Day-

Maintenance-The Secret of Cost Reduction

By RICHARD ALLEN

"QUALITATIVE Maintenance" may be a new term but those who know say it permits the setting up of preventive maintenance routines that may be altered when experience indicates the changes will produce operating economies.

PROPER maintenance of telephone outside plant is unquestionably important for reliable telephone service. The problem is how to handle this phase of telephone operation in the most efficient manner; by an all-out inspection and repair program at regular intervals, as part of the daily work assignments, or by a combination of the two.

Economy of time and money is the prime consideration in establishing a preventive maintenance program. The basic maintenance plan best suited to the telephone company is decided upon and the program is carried on until improvement in the overall condition of the plant justifies changes in the program that effects more economies. These changes usually consists of increasing or decreasing intervals between maintenance routines or eliminating certain phases of the routines that have been found unessential to the program.

The setting up of preventive maintenance routines and altering the routines, when experience indicates these changes will produce operating economies without impairing telephone service, is termed "qualitative maintenance."

Preventive maintenance routines that includes regular tests, inspection, and corrective repairs of the plant assure good telephone service. However, good judgement is necessary to avoid carrying on the routines to the point where the cost becomes excessive for the results obtained. This may include overfrequent tests and inspections, and unnecessary replacements of plant items for appearance or conformity to new standards.

In general, preventive maintenance should be directed to keeping the outside plant in good shape so that there will be reasonably few service complaints and "detected" troubles (troubles found in the course of daily work by exchange workers). Studies of complaint records and trouble reports will indicate how effective the maintenance program has been. From these records and reports, the overall condition of the outside plant can be ascertained, and changes made in the maintenance procedures to improve the results or to eliminate unnecessary inspections and tests, or prolong the intervals between them as the case may be.

The preventive maintenance program includes

two related courses of action to put outside plant in good condition. One, which is the more important of the two from the standpoint of economy and efficiency, concerns checking of the plant by individual workers in the course of their regular assignments. The other course of action, somewhat less well known, but quite important under certain conditions is an overall inspection of the outside telephone plant at regular intervals.

In larger companies, the daily maintenance work results from the large number of telephones in the exchanges. In these exchanges, practically all telephone circuits are in cable and the outside plant is heavily concentrated. Because of this heavy concentration of plant and a great number of telephone subscribers, a relatively large working force is required to handle the routine work of installing and removing telephones and locating trouble in lines and station equipment. The men spread out over the exchange area in the course of their daily work and thus there is ample opportunity for them to observe and report instances of potential trouble. These cases are handled with reasonable promptness through systematic assignments to combinationmen or construction crews, depending on the amount of work required.

In exchanges located in predominately rural districts, the telephone subscribers are scattered over a wide area and they are served principally by open-wire lines which are subject to damage from various causes and deterioration through exposure to weather. The small towns may have either open wire, rural distribution wire, or a limited amount of cable plant. The working force, in many cases, may consist of only one or two men who have to drive many miles over country roads on their daily assignments and yet cover only part of the company service area. The result is that telephone plant in remote locations may be visited only on rare occasions. It is thus possible for plant deterioration in many places to remain undetected until the exchange men first learn of the condition when actual trouble results.

Plant deterioration in these remote locations is best prevented by inspection of the entire outside plant at regular intervals. The intervals may be one year or two years, perhaps more. Experience will indicate the proper intervals. Under ordinary conditions, when only inspection is involved with the work handled by the regular forces as directed by the inspector's report, the work of checking the plant requires only a short time, and the results are well worth the effort.

Farmersville Telephone Co.
SYSTEM

REPORT OF PLANT CONDITION NO. 17

[V] NONSTANDARD PLANT CONDITION AND/OR

[V] CONDITION REQUIRING REARRANGEMENTS & CHANGES

IS CONDITION HAZARDOUS TO VEHICLES, EMPLOYEES OR PUBLIC ? [NO]

EXCHANGE: Magnolia DATE: 5/5/55

LOCATION: (Show Pole No., Terminal No., Street Address)
Pole 2-79, two miles south of Central High School.

CONDITION TO BE CORRECTED: 4 spans of 8 wire lead out of sag. Pole 2-79 leaning. Guy lead is too short. Should set stub pole across road.

REPORTED BY J. Carter

WORK AND MATERIAL REQUIRED TO CORRECT CONDITION: Tie wire and splats; 120 ft. 6M strand; 6M anchor; 20/9 pole; hardware for overhead and down guy; retire down guy.

WORK AUTHORIZED: Set guy stub pole string overhead and down guy and install anchor. Straighten pole 2-79. Resag wire if necessary.

REFERRED TO: Carter-Jones DATE 5/6/55 WORK ORDER NO. 7-55

DATE COMPLETED: 5/9/55 COMPLETED BY: Jones-Carter

APPROVED: H.W. Holly, Pl. Super.

USE BACK FOR SKETCH AND ADDITIONAL INFORMATION

FIG. ONE: — Memorandum form for reporting unsatisfactory condition of plant items for correction, as used by exchange forces on daily work assignments. — (From "Telephone Operations Manual," Rural Electrification Administration.)

Daily Inspection of Plant

THE DAILY inspection procedure requires the training of exchange workers to carefully observe open wire leads, farm spurs, drop wires, and junctions of cable and open wire in the course of their routine assignments and to correct or report any cases of incipient trouble.

In driving over the territory on their assignments, the men should be on the look out for incipient trouble conditions, such as trees growing into contact with open wires, accumulated debris on line wires, broken or "floating" insulators, loose pole brackets, missing bolt nuts, unequal wire sags, loose tie wires, leaning or washed out poles, slack guys, slipped pole anchors, and insufficient clearances of line wires from ground or from power lines.

An excellent procedure to follow whenever a pole is climbed for some work like testing on the line, placing a drop, or observing some condition more closely, is to inspect the entire pole equipment and wires all over and as far out from the pole as possible. This inspection would include crossarms, pole brackets, pins, insulators, crossarm bolt and nut, crossarm braces, bolts and drive screw, buffer protectors, and transposition brackets or plates. If a junction pole is involved, the cable, cable terminal, and associated protection should be inspected.

In the case of town and farm cable, the conditions to look for, if a cable pole is climbed would include cable sheath damage (cracks, squirrel bites, and tree abrasions), loose or broken lashing wire, cable bows (waviness), and missing or improperly placed lashed cable supports.

Any unsatisfactory condition, such as broken in-

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ECONOMY of labor and investment in special equipment are important factors in determining the method that should be used for moving pole lines.

When You Move a Pole From "Here" to "There"

By MYRLE SHAFER

MOVING poles to relocated property lines is not an easy job, but these cost-saving procedures will help you accomplish the task without interfering with working circuits.

ROAD WIDENING projects have become quite numerous within recent years. Many of these projects are initiated by Federal agencies, including the newly established gargantuan Federal Interstate Highway Program. Others are state projects made necessary by increasing vehicular traffic between towns, requiring improving of existing local highways to accommodate the greater traffic. All these programs increase the burden on telephone companies by requiring them to move their poles to relocated property lines at a time when they are struggling to keep up with the demand for additional cable and open wire facilities.

Procedures have been developed for moving the poles without interfering with working circuits and at the same time save on labor costs. Two general methods are employed to move poles, depending on how much wire or cable would have to be cut in permanently to allow for increased line lengths.

Where a large amount of wire would have to be cut in, as when an open-wire lead passes around barrow pits on a highway, a new lead is constructed around these areas, and the line wires are temporarily spliced to corresponding conductors in the old lead.

The portion of the lead in the way is then removed, permanent splices being made as each wire is cut. The poles in that portion of the lead are afterwards taken out, leaving the areas open for access. *See Figure One.*

In the case of a straight pole line move, with the poles being relocated to another line paralleling the road, the poles may be lifted out bodily and transported one or more at a time across the right of way without untying or cutting the wires. This operation is greatly facilitated by the use of construction trucks with pole derrick and power winch.

Precautions Required In Moving Telephone Lines

SINCE THE POLES have to be lifted out of the ground, possibly 6 or 7 feet, great care is needed in situations where a power line crosses over the telephone open-wire lead.

If a preliminary survey indicates that the moving

operation may bring the telephone wires closer than the standard minimum clearances (for the voltages involved) from the overhead power wires, the power company should be requested to shut off the power in the location for the duration of the move.

Alternatively the telephone wire attachments may be temporarily lowered rather than have the power company de-energize its line. In any case, when the power line is not de-energized, the telephone wires should be held down with dry handlines during the move to prevent them from flipping up into the overhead power wires.

If these precautions cannot be employed to protect the workmen, the telephone line should be built in its new location rather than attempt to move the existing pole line bodily across the dangerous area.

If the condition of the terrain permits, and the property owners have no objections, it is a good idea to move the poles from the field rather than the road side of the line. This procedure avoids the difficulty of maneuvering the truck over a narrow road, through drainage ditches, and over road banks. The ground should be reasonably smooth, otherwise it should be made so, or planks should be placed for the truck wheels to go over. A bumpy progress of the truck places a strain on the wire attachments and may cause swinging shorts and crosses of the line wires.

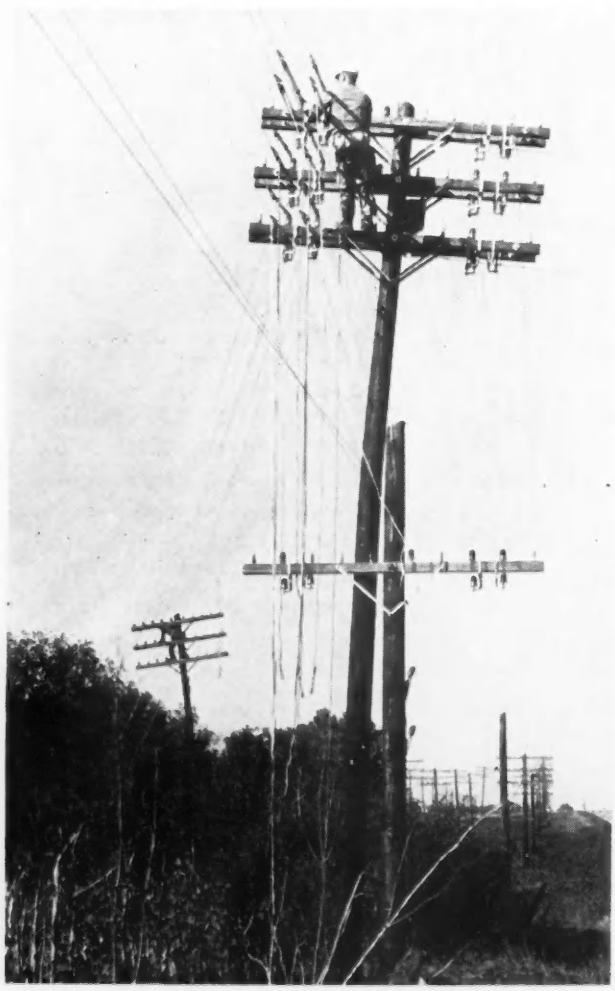

FIG. ONE: — Rebuilding a pole line around a barrow pit. Portion of the pole line in right background is to be removed on completion of the line offset around the pit.

Preliminary Preparations For Pole Move

BEFORE the pole line can be moved it will be necessary to determine the locations where the operation is to be started in each pole moving section and the order in which the poles are to be moved. The amount of slack to cut out of the line wires also has to be determined to enable the move to be made without undue strain on the wires and its attachments and to compensate for the longer path of the lead in the new location.

When the wire spans are about 150 feet long, each pole can be moved as much as 6 feet at a time, more for longer spans. These distances can be doubled if the wires are temporarily retied loosely at the first three or four poles of the section to be relocated.

Proper planning of the line move may eliminate the need to piece out the line conductors. For example, the move might be started with a pole that must be relocated only a short distance and then the move can progress along the line towards the pole requiring the greatest distance to relocate. Where a corner pole is involved, it may be possible to move that pole first and thus avoid cutting slack in the wires; provided the move is towards the corner and not away from it. Excessive slack should, of course, be removed; otherwise, swinging shorts and crosses may be difficult to avoid in moving the poles.

In the case of a corner pole where the move is away from the corner, it may be feasible to move the other poles first and then piece out the wires before moving the corner pole as a last step.

The amount of slack to cut into the line wires can be readily determined by measuring the distance between the first and second poles to be moved, using a tape line. The tape line is held at the second pole while the end at the first pole is swung out to the point where it meets the relocated line. A stake is driven at that point and the distance between the stake and the last pole remaining on the old line is measured. The difference between this measurement and the distance between the first and second poles is the amount of slack to be cut into the wires to enable the first pole to be moved. The stake on the relocated line also marks the location of the first pole when it is moved. The next stake (for the second pole) is marked by using the third pole as a radius center, the length of the radius corresponding to the distance between the second and third poles. Other stakes are located for the remaining poles by the same method.

The holes dug at the stake locations should be made large enough so the poles can be shifted as needed to line them up and produce the proper wire sags in each span. This will minimize the necessity for readjusting wire sags on completion of the pole move.

One common method of moving poles and wires to a location farther away from the road makes use

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NEW WORK METHODS Reduce Costs and Make Jobs Easier and Safer

By JAMES A. BOYD

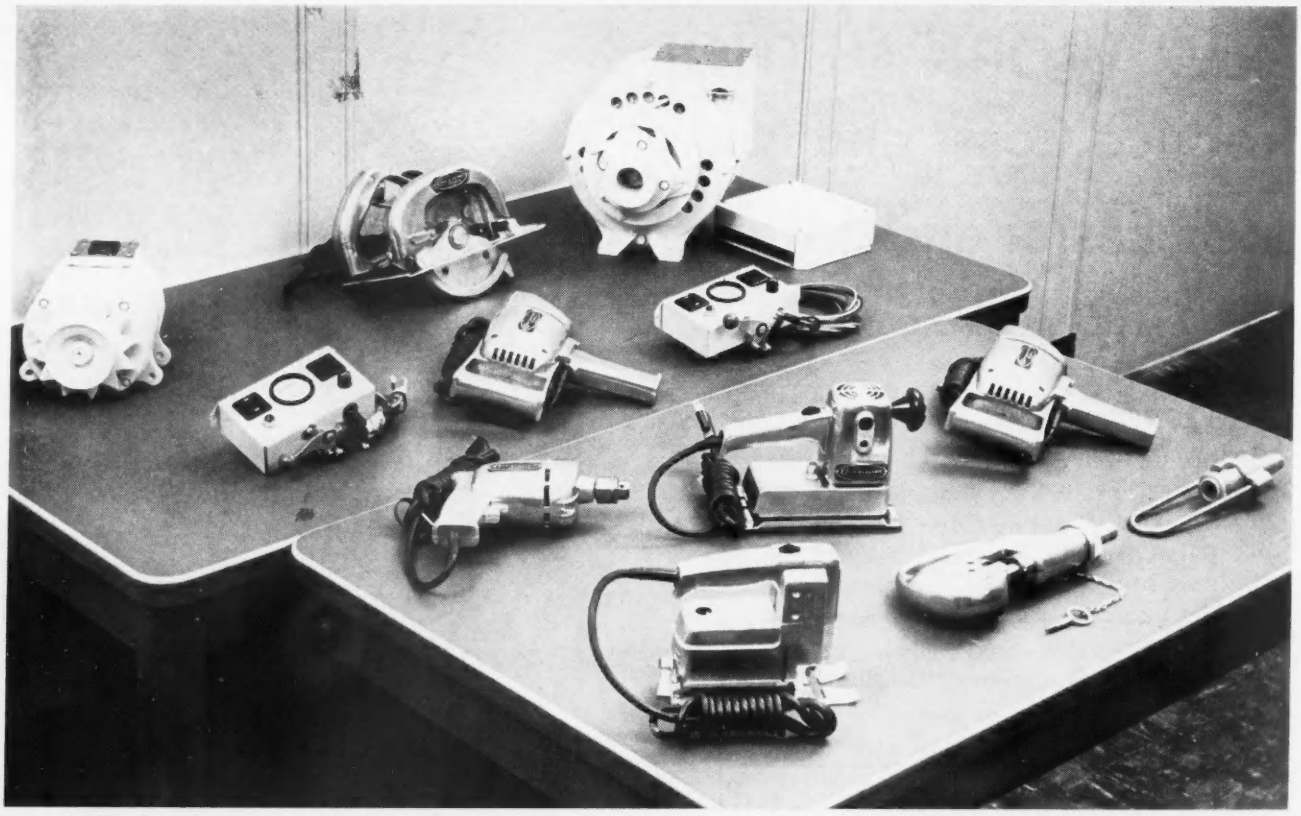
CONFRONTED with rising costs of plant operations, telephone companies are taking a hard look at their work methods, to see if there's a better way to do things, to save on cost, to make the job easier and safer.

On these pages, we present a number of recent ideas that plant men have come up with to help bring down costs and yet maintain good telephone service. Several of the photos were furnished through courtesy of the Southwestern Telephone News.

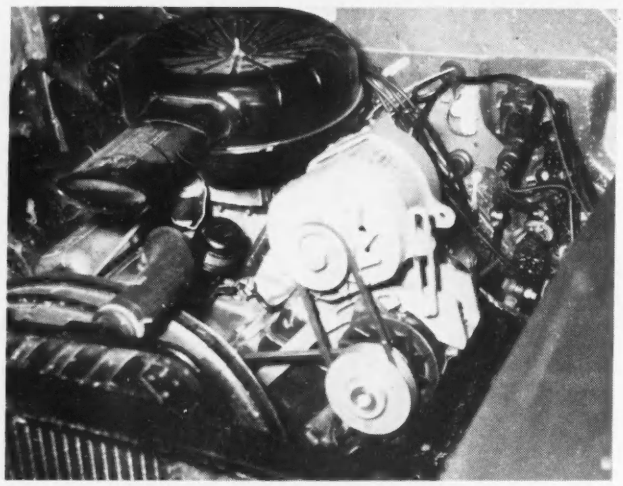
"Impak" Power Tools

IN AN EFFORT to combat rising maintenance and installation costs, Cook Electric Co., Chicago, has developed and is introducing, a new line of tools. Studies have shown that by making available, power at the pole and on the pole, worthwhile time savings can

Instead of climbing the pole and using a platform fastened to the pole, this lineman uses a hydraulic derrick mounted platform to get him up there and let him do his work in safety and comfort. This arrangement is said to save one-third the usual work time.



Display shows some of the tools and accessories introduced in the new "Impak Power Tool" line.



Impak Power Generator is installed to ride "piggy-back" under vehicle hood.

Portable Power — plugs in as easy as in the shop.

be realized. The new line of "Impak Power Tools" which furnishes or utilizes cartridge power, 110 volt 60 cycle and/or 220 single phase and 3 phase power covers a wide range of purposes. The furnishing of "power-at-the-pole" is accomplished by the new Cook "Impak" Power Generator which mounts piggy-back on the D.C. vehicle generator. This Impak Power Generator derives its excitation from the D.C. generator.

It is now possible to employ standard 110 volt A.C. power tools remotely for drilling, grinding, sawing metal or wood, ventilating, pumping, brush cutting, post-hole drilling, and flood-lighting.

Tools or appliances for all of these purposes will be introduced in the new "Cook Impak Power Tool" line. The Impak Cable Cutter, already introduced, is being adapted to a multitude of purposes. The second item in the new power tool line, is the Impak Power Generator, currently being introduced.

It has long been a known fact to the telephone construction men that the saving of time and the ease of operation "out-on-the-line" is made possible by the use of power tools. The use of these power tools on the line, however, has been limited by the economical provision of providing portable power on the line construction truck, tractor, or car.

Cook Electric Co. reports that this problem of economical portable power has now been solved by its Impak Power Generator, that can be hooked up to the engine of any vehicle. In addition to providing power for tools, this portable generator can be used for numerous "on-the-spot" emergencies. Its many uses include: providing power for floodlights; provide power

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GOOD TELEPHONE SERVICE

Starts With Proper Installation

By JOHN S. REED

GOOD installation practices stimulate the plant employe's confidence by enabling him to deal intelligently with the situations that arise in the course of his daily work.

CHAPTER ONE — The Installer

CHAPTER ONE of TEM's new Operating Manual discusses: (1) Desirable qualities of the telephone installer; and (2) determining location of drop entrance. This is Chapter One of a 4-chapter article.

THE FOUR fundamentals of station installation that contribute to good telephone service for the subscriber are the following:

(1) Proper drop wire installation.
(2) Efficient station protection.
(3) Good station wiring practices.
(4) Up-to-date telephone instruments or equivalent.

It is obvious that incorrect procedures or use of unsuitable material or station units will result in unsatisfactory service for the telephone customer. Good installation practices stimulates the plant employe's confidence by enabling him to deal intelligently with various situations in the course of his daily work. He is thus able to deal with the customers in a capable and courteous manner, and earn good will for his company in his contacts. This is particularly desirable when the company has a merchandising program which requires wholehearted participation by plant workers such as installers and combinationmen, who frequently contact telephone subscribers.

Desirable Qualities Of A Telephone Installer

SINCE the installer works on the customers premises and often has to discuss the proposed installation with the customer, he represents his company in his dealings with the telephone subscriber. A good personality and a genuine liking for people are helpful in such contacts. However, most subscribers prefer to deal with workers who are efficient, unobstrusive, neat and courteous.

In the interest of good drop wire maintenance, the conscientious installer will carefully survey the subscriber's premises to determine the best route for the drop so that a short vertical run on the building can be

placed and the station protector is not located too far away from the wire entrance, or the ground connection to a water pipe.

When installing the drop, he will install the wire where it will not go over or through trees and shrubs and where it will not pass close by windows to obstruct the owner's view. He will take note of bad drop wire situations so that cable or other wire facility extensions may be considered to relieve the congestion. Whenever this is necessary, he will arrange for a cable reassignment to avoid runs past cable terminals.

Recognizing the importance of good customer relations, he will comply with the subscriber's wishes as to the location of the telephone or tactfully suggest a more suitable place to avoid having the instrument on a flimsy table, in a narrow passageway, or within reach of small children. He will take care to not track dirt into the house and will avoid wearing hob-nailed boots that would mar the floor.

He will arrange his tools and materials in an orderly manner, protect finished surfaces from contact and sharp-edged tools, and take care not to leave wires in doorways and near stairs for someone to trip over. He will conceal inside wire in partitions or walls whenever practicable, and route exposed runs neatly, using the type of fasteners suitable for the location of the run. He will mount wall sets, bell boxes, and connecting blocks neatly and securely with the right number and proper kind of fasteners for the type of mounting surface.

As a last, but important step, the installer will clean up and properly dispose of all debris resulting from work operations before leaving the subscriber's premises on completion of the installation.

Steps in Determining Location of Drop Entrances

ONE IMPORTANT step in the station installation work is to decide where the drop should enter the building. With so many different types of house construction and property arrangement, it is necessary to exercise good judgement in selecting the location of the wire entrance into the building or the outside protector for terminating the drop. The subscribers' premises should be carefully surveyed before deciding on the location of the wire entrance or outside protector.

The subscriber may request a specific location for the drop wire attachment or outside protector and his wishes should be followed. If any unsatisfactory condition might result, the situation should be tactfully explained to him and a better arrangement suggested. If any unsafe conditions, such as low wire span or hazardous proximity to power wires for the drop might result, he should be persuaded to accept a safer arrangement.

Considerations When Drop is In Place

WHEN THE drop is already in place, the following points should be considered in deciding whether to use the same wire entrance and drop run or to relocate the entrance.

The drop may be left undisturbed if it is in good condition for reuse or if minor repairs will make it reusable, and save time and material over placing new wire. If the drop requires replacement, a different location should be considered for the wire entrance, if the original entrance is unsuitable.

There may be instances where an unsightly horizontal drop run has been placed and the wire is in good shape. If there is a better location for the wire entrance elsewhere, the run should be relocated to shorten the horizontal portion as much as possible. A direct vertical run from the primary attachment to the new entrance should be obtained, if practicable.

Considerations When Drop is Not in Place

WHEN THE drop is not in place, the following preliminary steps should be taken before deciding where the entrance is to be made for the drop or where an outside protector is to be placed for terminating the drop.

Service Conduit: Look for a service conduit that may have been installed for bringing the telephone wiring into the building.

Advance Wiring: In many residences, particularly those without basements and/or attics, advance wiring may have been placed to facilitate the telephone connection. Such wiring should be looked for in determining the location of the entrance.

Existing Entrance Hole: In the case of an old building, see if there is an old entrance hole (plugged or open) that can be reused, if it is in a suitable location for bringing in the drop.

Selection of Type of Station Protector: Decide whether an inside or an outside type protector is to be installed.

Drop, Ground, and Station Protector: Where an inside protector is to be installed, the ideal arrangement is obtained when the protector is so located as to result in short runs of the drop wire inside and outside the building and a short run of the ground wire, without regard to length of the station inside wire run.

In the case of an outside protector installation, it is very desirable to place the shortest possible drop and ground wire runs with as long a run of bridle or inside-outside station wire from the protector as necessary to reach the telephone instrument location. When it is not practical to obtain all short runs of drop and ground wires, the following alternatives are preferable in the order given:

(1) *Direct vertical* run of drop wire from the primary attachment to wire entrance or outside protector. This produces the neatest installation and is preferable in all cases where practicable.

(2) *Shortest practicable horizontal* run of drop wire on outside of building when a *direct* vertical run cannot be placed. A long horizontal run on the outside wall that goes around corners is usually very objectionable

to the subscriber and may cause complaints.

(3) *Shortest practicable* run of drop wire *inside* building to inside protector location.

(4) *Shortest practicable* run of ground wire from protector ground post to cold water pipe or other approved ground.

Preference should be given to a primary attachment of the drop on the rear of the building. A good location would be near an outside or inside corner or near a power service conduit. If a location on the rear of the building is not practicable, it may be possible to attach the drop span to either side of the building (preferably the side less exposed to the street if the house is on a street corner). In some cases, the cable lead may run along the street instead of in the alley, with the houses facing on the street, and the drop may have to be attached to a side of the house to avoid a horizontal run to the rear. It is not considered a good practice to attach the drop to the building front.

Undesirable Locations For Entrances to be Avoided

IN SELECTING the location for the drop wire entrance or outside protector, the undesirable situations outlined as follows should be avoided:

The drop span should not cross in front of a window, thus interfering with the view from it. This would be especially objectionable to the subscriber if a picture type window were involved.

The drop span should not cut across a property lot (vacant or occupied) adjacent to the subscriber's property. In certain instances, however, the lots may be so crowded together in such a manner that the drop must cross another lot or even require attachment to another house in order to obtain a satisfactory entrance for the drop. Such attachment requires prior permission from the owner of the house.

The drop span should not pass too close to ground (less than 8 feet minimum over ground or walks or less than 10 feet minimum over town residence driveway). In some cases, it may be necessary to attach the drop elsewhere on the building and place a horizontal run to provide the needed ground clearance.

The drop span should not cross over a clothesline. The drop may parallel a clothesline as long as the span does not hang directly over any of the wires or rope strung for the clothesline.

The drop span should not swing into contact with a porch or building extension projecting from the house.

The drop span should not pass or be attached close to a gutter, rain spout, or conduit on houses in isolated areas where lightning strikes frequently.

The foregoing unsatisfactory situations may often be avoided by properly routing the drop wire. Where a selected route would cause the drop to go through trees, the drop should be arranged to avoid direct rubbing contact with tree trunks or limbs, using drop wire guards where such contact cannot be avoided. These guards are not required where only a brushing contact

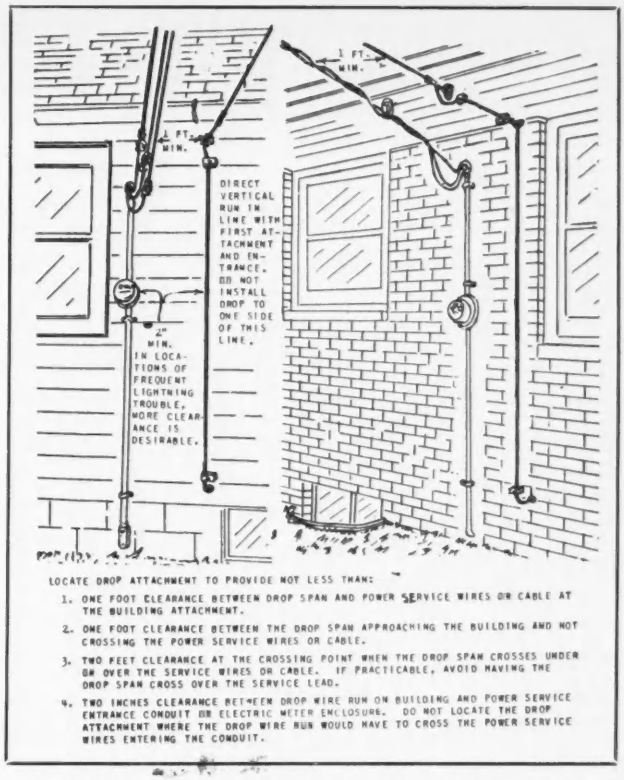

1 FT. MIN.
1 FT. MIN.
DIRECT VERTICAL RUN IN LINE WITH FIRST ATTACHMENT AND ENTRANCE. DO NOT INSTALL DROP TO ONE SIDE OF THIS LINE.
2" MIN. IN LOCATIONS OF FREQUENT LIGHTNING TROUBLE, MORE CLEARANCE IS DESIRABLE.
LOCATE DROP ATTACHMENT TO PROVIDE NOT LESS THAN:
1. ONE FOOT CLEARANCE BETWEEN DROP SPAN AND POWER SERVICE WIRES OR CABLE AT THE BUILDING ATTACHMENT.
2. ONE FOOT CLEARANCE BETWEEN THE DROP SPAN APPROACHING THE BUILDING AND NOT CROSSING THE POWER SERVICE WIRES OR CABLE.
3. TWO FEET CLEARANCE AT THE CROSSING POINT WHEN THE DROP SPAN CROSSES UNDER OR OVER THE SERVICE WIRES OR CABLE. IF PRACTICABLE, AVOID HAVING THE DROP SPAN CROSS OVER THE SERVICE LEAD.
4. TWO INCHES CLEARANCE BETWEEN DROP WIRE RUN ON BUILDING AND POWER SERVICE ENTRANCE CONDUIT OR ELECTRIC METER ENCLOSURE. DO NOT LOCATE THE DROP ATTACHMENT WHERE THE DROP WIRE RUN WOULD HAVE TO CROSS THE POWER SERVICE WIRES ENTERING THE CONDUIT.

FIG. ONE: — Direct vertical run of drop wire paralleling power service lead and conduit.

from branches or twigs would be encountered. It is desirable to trim the trees when permission can be obtained to do so, particularly if this will result in a long-time clearance, as when the tree can be undertrimmed.

In new building construction, it is the practice of the power company to bring in the electric service by means of service cable or wires entering through conduit. It may be possible to obtain a satisfactory entrance for the telephone drop by locating the primary attachment near the conduit entrance and dropping the wire in a direct vertical line to the entrance hole or outside protector as illustrated in *Figure One.*

In some cases, a neat installation may be obtained by stringing the drop span from the same pole as the power service lead, so that it runs parallel under the lead to the building attachment. This method is particularly advantageous when the power service leads goes through a cleared space through trees and the drop can pass through the same space with the service lead. — *To be continued in the next issue.*

Semi-Postpay Paystations

AUTOMATIC Electric's new technical bulletin 702-86, covering semi-postpay paystations, type 86, 86-10, 86-55, 96 and 66, has been sent to all holders of the company's Installers Handbooks. Extra copies of the bulletin, a 4″ x 6.75″, 32-page insert, that can be added for ready reference to the Automatic Electric Installer's Handbook, may be obtained by writing to *Ad Dept., Automatic Electric Sales Corp., Dept. TE&M, Northlake, Ill.*

AUTOMATIC'S NEW TYPE 8

can be mounted on any ve

Today's modern homemaker appreciates the convenience of a kitchen phone. She particularly likes the phone that doesn't get in her way.

Teenagers, too, like the Type 83. They can *be comfortable* when talking because it mounts in such handy places. And, daughter gets her choice of 10 colors.

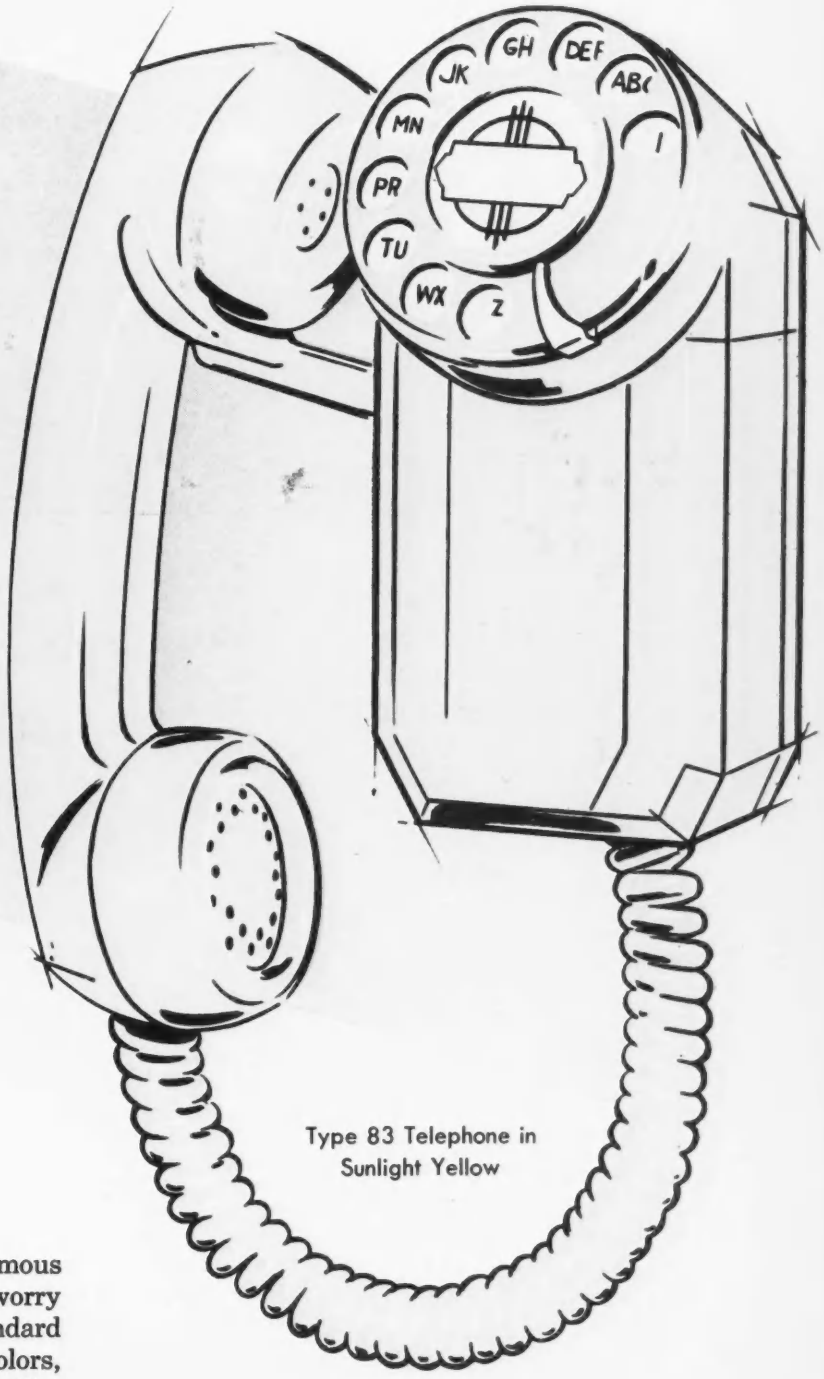
YOUR SUBSCRIBERS will go for Type 83 extensions in a big way! This new *compact* telephone can be mounted on any vertical surface—wall, column, side of desk, etc. Requires only 7″ x 3¼″ of space. Saves valuable working space on desk and table tops.

The Type 83 Compact Telephone uses the same circuit and basic components as Types 80 and 90, but without ringer. As an extension telephone, it requires only two wires to its associated mainline instrument. It can also be used with a ringer box.

E83 compact telephone...

ny vertical surface!

In the workshop, dad has his Type 83 mounted right on the workbench. He never has to run upstairs to make or answer a call—the phone is right at his fingertips.



Type 83 Telephone in Sunlight Yellow

Type 83 Telephones give your subscribers famous Type 80 transmission. And, *you* don't have to worry about stocking special parts—this phone uses standard components! There's a choice of 10 beautiful colors, too: Gardenia White, Camellia Pink, Forget-Me-Not Blue, Sand Beige, Garnet Red, Jade Green, Classic Ivory, Dawn Grey, Sunlight Yellow and Turquoise. For prices and ordering information, write: *Automatic Electric Sales Corporation, Northlake, Illinois. Or call, Fillmore 5-7111.*

AUTOMATIC ELECTRIC

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FOR BETTER SERVICE

Regroup Rural Subscribers

By JAMES A. BOYD

FARM subscribers welcomed the coming of rural dial srvice and the full selective ringing system that made their telephones like the ones they used on visits to the city.

Twenty-station lines have given way to 10-party lines and in many companies the 10-party lines will become five or six-party lines in order to obtain the advantage of full selective metallic ringing.

IN A TELEPHONE exchange with all lines and equipment in good condition and having excellent transmission, the best possible telephone service is rendered by single-party lines. Lines with more than one subscriber on each tend to degrade the otherwise excellent service by imposing a waiting period on users of the line when the latter is busy. The more subscribers there are on the line, the more numerous are the waiting periods, which can be aggravating to impatient line users.

The only reason for party lines in the telephone exchange is economic. Lower rates are charged for party line service and, theoretically, the user would benefit financially by this concession in return for his tolerance of the waiting periods. The telephone company is also supposed to benefit through a slight reduction in cost of office equipment and in the number of cable pairs required for the connections.

Party line subscribers who use the service only occasionally do not seem to object to the line being in use when they want to call. However, with several subscribers on one line who make frequent calls, or in situations when one or two people monopolize the line, there will be complaints from the line users. The quality of the service in such cases is affected almost as much as if trouble had occurred in the line or associated equipment.

Multiparty Lines

IN RURAL communities, multiparty lines are unavoidable principally because the cost for lines and equipment to provide single party service would be quite high in comparison to the same service in urban areas. The rural communities are thinly settled and the lines may serve only two to four families in each mile, resulting in a considerable amount of line material for line installations and labor for construction and maintenance.

The multiparty lines are an outgrowth of early day telephone installations in which magneto instruments were connected by long meandering lines having as many as twenty sometimes more stations per line. Code ringing was the only practical signaling arrangement from a cost standpoint. This type of service was satisfactory to the users as long as the lines were in reasonably good condition.

With the coming of the automobile and the emancipation of the farm family from its isolation, the farmer, his wife and his children began to enjoy the same conveniences that town life offered. It was only natural that they would demand the same kind of telephone service that their city cousins had. They welcomed the coming of rural dial service and the full selective ringing system that made their telephone so much like the ones they used on visits to the city.

At present the 20-station lines have given way to 10-

party lines. It is the prediction of many companies that these will in turn become five or six-party lines, quite likely five, in order to obtain the advantage of full selective metallic ringing.

With the 10-party arrangement still standard, experience indicates that it is desirable to provide for between seven and eight subscribers per line. Because of moves of tenant families and purchases and sales of farms, telephone service may have to be provided or disconnected at stations. The eventual result is that some lines will have a few in-service stations left on them and others will have more than the desired maximum number of stations.

Plant Record Map

THE PROGRESSIVE exchange or company manager keeps track of these station changes on his records. He will also have a rural plant record map which shows the locations of the farm stations. This map is prepared from a county map on a scale of 1/2″ to 1-1/2″ per mile. In addition to the stations, it indicates the lines radiating from the end cable terminals at the town boundaries, the section mile numbers, and the spur line designations.

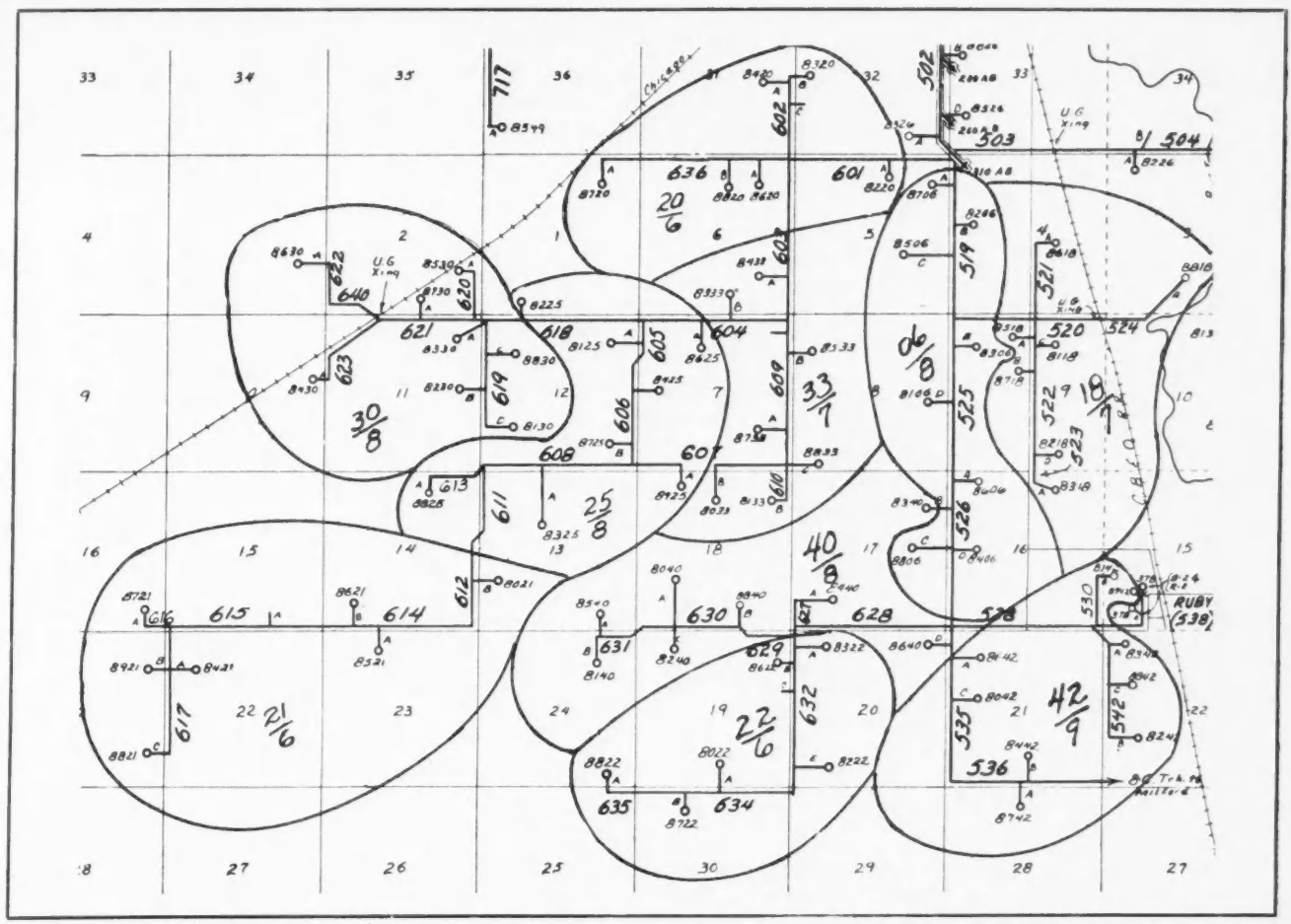
At intervals, usually before a new telephone directory is to be prepared, a study is made of the record map to determine if the lines should be rearranged to equalize as much as possible the number of existing and proposed stations on each.

Before starting the regrouping program, the manager should contact all non-subscribers in his area to determine how many future prospects for telephone service there will be. These prospects should be included with present subscribers in each group.

These groups are shown on the record map by means of lines drawn around each selected group representing the subscribers to be served by one line. Present subscribers are indicated on the map by a small open circle with the telephone number entered next to it. Although this is not essential, locations of prospects for telephone service may be shown, by a letter "P" in the approximate locations on each map. The accompanying illustration shows portion of a typical record map used in a regrouping program.

As previously stated, an ideal grouping is one in which seven or eight parties are served by a single line. To allow for the prospects that may order telephone

Please turn to page 102



Portion of rural plant record map showing method of grouping line subscribers by line numbers (last two digits for harmonic full-selective dial system in this particular case). Two main lines from terminal 310AB are shown grouped. The line number is shown as the "numerator" and the number of subscribers in the group as the "denominator." This study indicates good average subscriber grouping considering that there are a number of prospects for telephone service in the area. Line 42 has nine subscribers; however, regrouping is not planned for this line because two of the subscribers are selling out and their land will be rented to other farmers in the area.

Illustrating use of Arps Trench-Devil with curb attachment for operation on curb line. Note winch line to stake in rear.

PLANT NOTES on NEW DEVELOPMENTS

By JOHN S. REED

Compact 1-Man Trencher For Light Trenching Jobs

COMPACT new one-man trencher has been developed for gas or water line trenching, electric cable installations, telephone installations, and similar light trenching jobs. One man can transport the trencher to the job site, unload it from a truck, complete the work at hand, and load the unit unaided. It digs a trench 2-3/1″ wide, up to 20 inches deep. At the 20 inch depth, digging speed averages six feet per minute; a 12 inch depth increases digging speed to 15 feet a minute.

Operation of the trencher is fast and simple. A cable wound on a winch drum on the machine is pulled out and attached to a stake driven in the ground at the required distance behind the trencher. The digging chain boom is lowered to the desired depth and locked in position. Turning a hand crank at the top of the unit winds the cable on the winch, pulling the entire unit along the correct direction of travel.

Features of the trencher include: cutters made of high carbon, heat treated steel; ball bearings utilized at all points of high speed or heavy loads sealed to keep out dirt, and a protective shroud to shield the operator and engine from flying dirt. A useful optional accessory is a curb attachment for digging inside of concrete curbings or on hillsides. When using this attachment the trencher's wheels are adjustable to 8″ below normal, keeping the unit level at varying curb or slope heights.

Veteran Cable Splicer Invents Circuit Tester

BUSY-BOY is the name given to a new visual circuit tester designed for testing a telephone circuit for busy or not busy condition. It was developed to replace the usual head phone or test set method of listening in on the line to note if it is busy before making a pair transfer. This old method had the disadvantage of interrupting service and annoying the telephone users if the line happened to be in use.

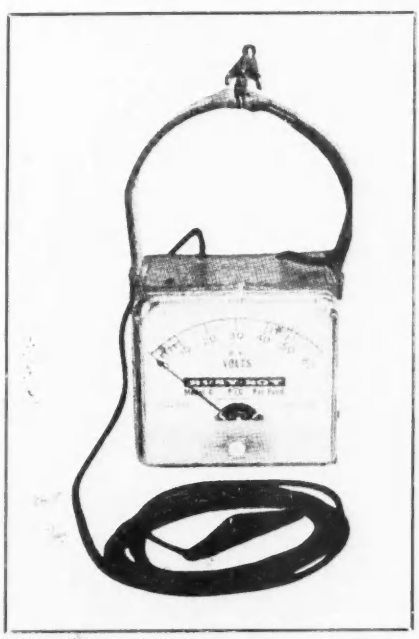
The invention of Peter M. Buhler, a long time cable splicer, this remarkably simple tester is a 100-ohms-per-volt meter with an 0-60 volts scale. One terminal of the meter is grounded. The other terminal is connected to a cord equipped with a clip and switch combination termed a transfer clip. The switch is arranged to cut in either the circuit tester or a tone used in identifying the pair at the other end.

With one side of the meter on ground, (cable sheath for example) the transfer clip with the switch operated for the circuit tester is connected to one side or the other of

Busy-Boy Model E. Circuit Tester for outside plant use.

the line as required to obtain an upscale reading on the meter. The meter will read the full battery voltage (about 48 volts) if the circuit is not in use. If, however, the line is being used, the meter will read a much lower voltage because of the drop caused by the current flow to the telephone instrument from the office. This voltage indication is a warning to the splicer not to send tone on the pair, but wait until the line is clear. Because of the comparatively high resistance of the meter, insertion of the meter in the busy circuit does not cause an interruption or affect the central office equipment operation.

When the circuit tester indicates the full battery voltage, the splicer knows the line is not in use and presses the switch to disconnect the meter and cut in the tone.



Busy-Boy Model C Circuit Tester for central office main frame use.

Two models of the Busy-Boy are available, one, Model E, designed for outside plant use on exchange and trunk circuits as previously described and the other, Model C, developed for use in central offices. The Model C makes it possible for one man to verify central office half-taps, whereas by the older method, two men were required. This one-man operation is accomplished by using a plus and minus alternate jack system.

The Model E is said to save 30 percent on jobs involving working circuits with the advantage of preventing service interruptions and assuring secrecy of communication. The Model C tester is stated to save even more, 50 percent on some jobs.

Both the Busy-Boy Model C and E circuit testers are manufactured by the Petlin Corporation.

Transistorized Mobile Radio

A COMPLETELY transistorized two-way mobile radio has been announced by Motorola in its new *MOTRAC* radiophone. The radio, now being given operational field tests, has a completely transistorized receiver and power supply and a partially transistorized transmitter.

More than 20 transistors are utilized to provide the mobile radiophone with reliability standards and current drain characteristics never before realized in a two-way mobile radiophone.

Printed circuitry, modules and die cast construction are employed throughout the unit to further its reliability, compactness and ruggedness. The entire unit is but three inches high, eleven inches wide and seventeen inches long, almost half as small as other two-way radios.

A primary advantage of the radio unit and its extensive transistorization is its low power consumption characteristics. The complete unit draws but 1.82 amps, one third that of regular two-way radios while on standby — that is, just turned on waiting to hear a message, a condition in effect 99% of the time. The complete transistorization of the receiver is most important here, since the receiver tubes are the items draw-

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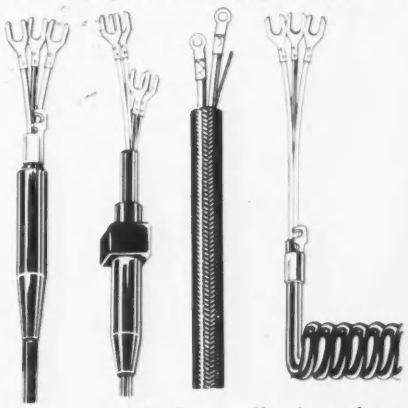

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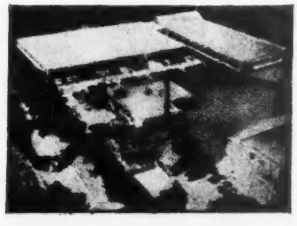
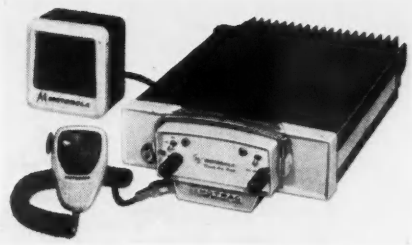




More than 20 transistors are utilized in the new "Motrac" radiophone.

ing most power in conventional two-way units while on standby duty.

The low power consumption characteristics of the Motrac radio will provide a real advantage to radio users in that they will be able to leave the radio turned on to hear messages at all times, even when the motor is turned off, with but little effect on battery life.

In the unit's radio power supply, four transistors replace such mechanical components as vibrators and dynamotors. Transistors replace all tubes in the receiver of the Motorola Motrac radio and a transistor is used instead of a tube in the transmitter's audio amplifier stage. Highly reliable printed circuitry boards, such as are used in subminiature military electronic equipment are used throughout the radio.

The unit's radio chassis consists entirely of die-castings which act as heat conductors to transfer heat away from the semi-conductors for longest transistor life. Two finned heat radiators are also designed into the unit, for maximum dissipation of internal heat. The entire Motrac radio makes use of modular construction for greater maintenance ease.

The new radio will be available for operation in both the low (25-54 Mc.) and the VHF (147-174 Mc.) frequency bands. The radiophone provides 25 watts power output in the higher band and either 30 or 50 watts in the lower band. The receiver has an audio output of 5 watts, an unprecedented level for mobile radio.

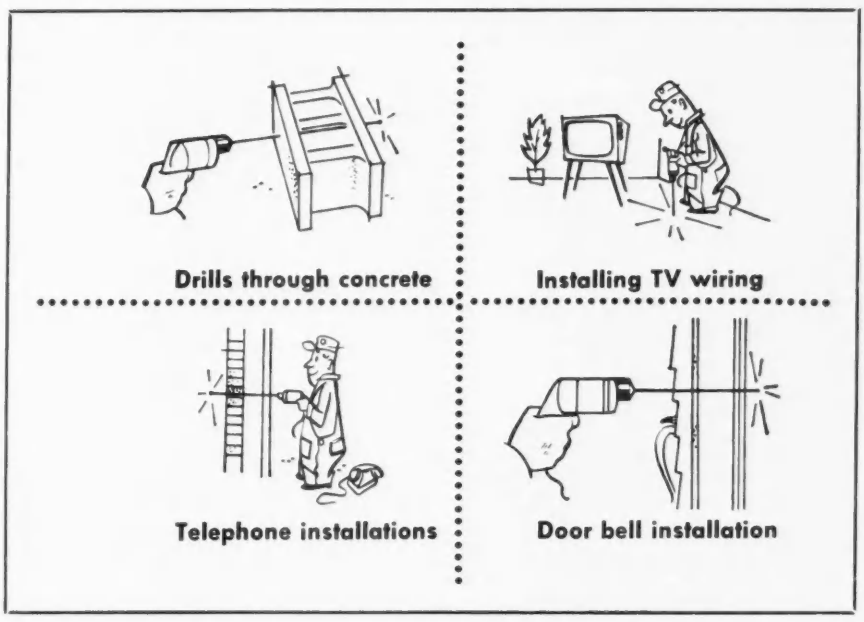
The new radiophone is universal mounting, either trunk or under the dash and is available in standard (carrier squelch only) and in Dual-Squelch "Private-Line" (carrier and coded tone squelch) models. For more information write: *Motorola Inc., Communications & Ind. Electronic Div., 4501 W. Augusta Blvd., Dept. TE&M, Chicago, Ill.*

New "Time-Saver" Drill Bits

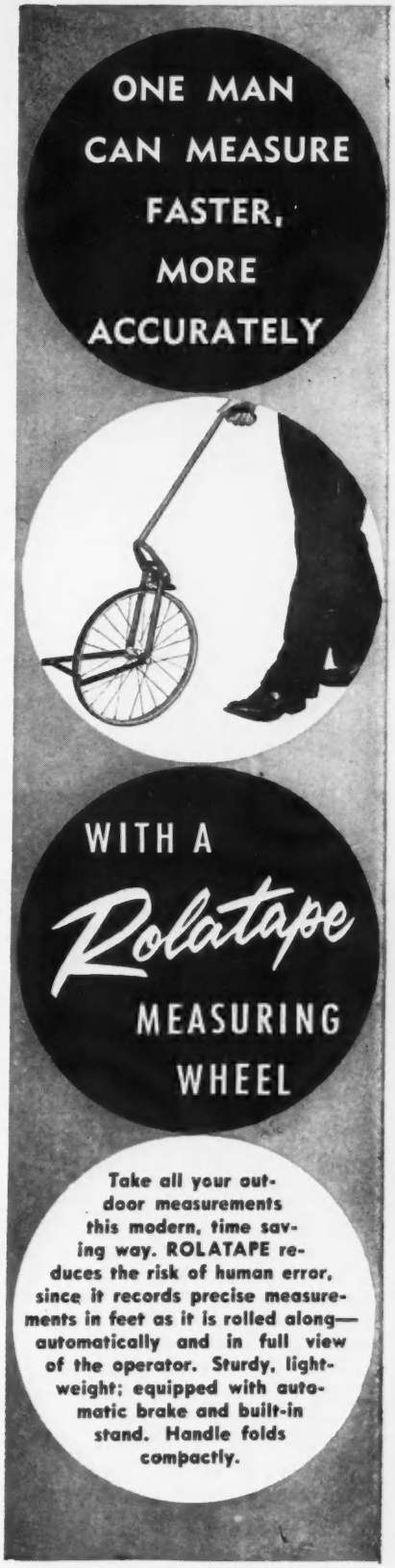
DESIGNED for use in any standard 1/4″ high speed drill, the new "Time Saver" all-purpose carbide drill bit drills through concrete, wood, and steel.

Available in six sizes: 5/16″, 3/8″, 7/16″, 1/2″, 9/16″, and 5/8″, and 12″ and 24″ lengths the new drill has the following features:

(1) New Time saver Carbide drills can be sharpened 10 to 15 times because special tough grade of carbide



New drill bit works with any standard ¼″ high-speed drill.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Take all your outdoor measurements this modern, time saving way. ROLATAPE reduces the risk of human error, since it records precise measurements in feet as it is rolled along—automatically and in full view of the operator. Sturdy, lightweight; equipped with automatic brake and built-in stand. Handle folds compactly.

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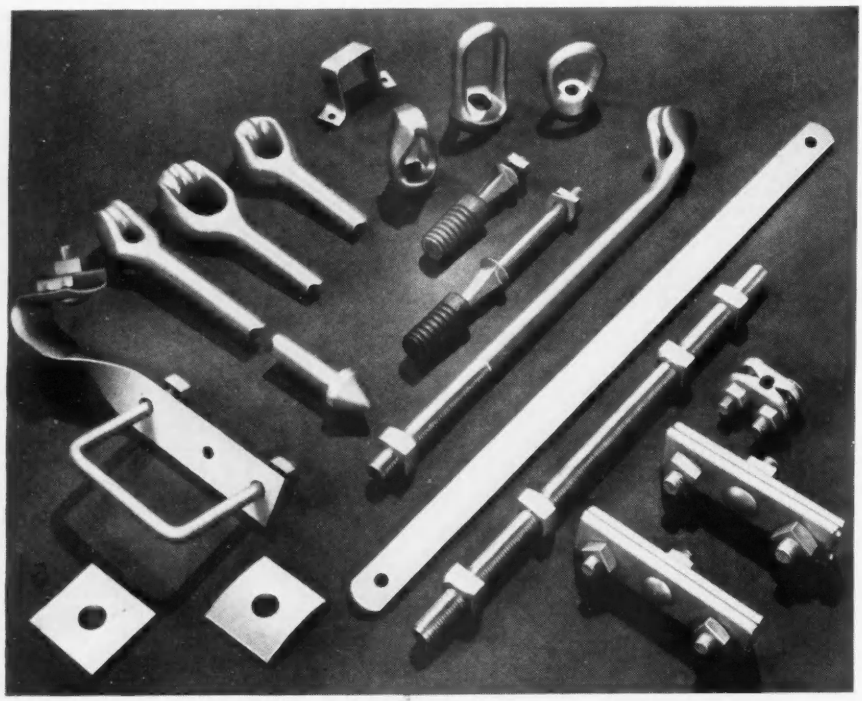

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- PINS—communications, low voltage, pole top, etc.
- PLATES—guy and load, reinforcing, etc.
- RODS—anchor, ground
- STRAPS—crossarm, etc.
- THIMBLES—guy
- WASHERS—curved, round, saddle, spring, square

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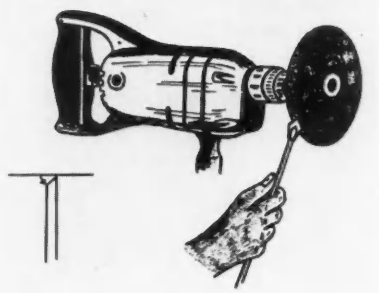
New carbide drill bit.

can be extended beyond the shaft. This means 10 to 15 times more holes per drill by actual test.

(2) Tough Time Saver Carbides can be run at new high speeds permitting easy drilling with any 1/4" electric drill.

(3) Vibrating action caused by high speed eliminates need for exerting excessive pressure when drilling concrete.

(4) Special thin steel shaft permits drilled particles to flow freely from



Drill bit can be sharpened 10 to 15 times.

the hole without packing. This means Time Savers run "cool" eliminating brazing failures.

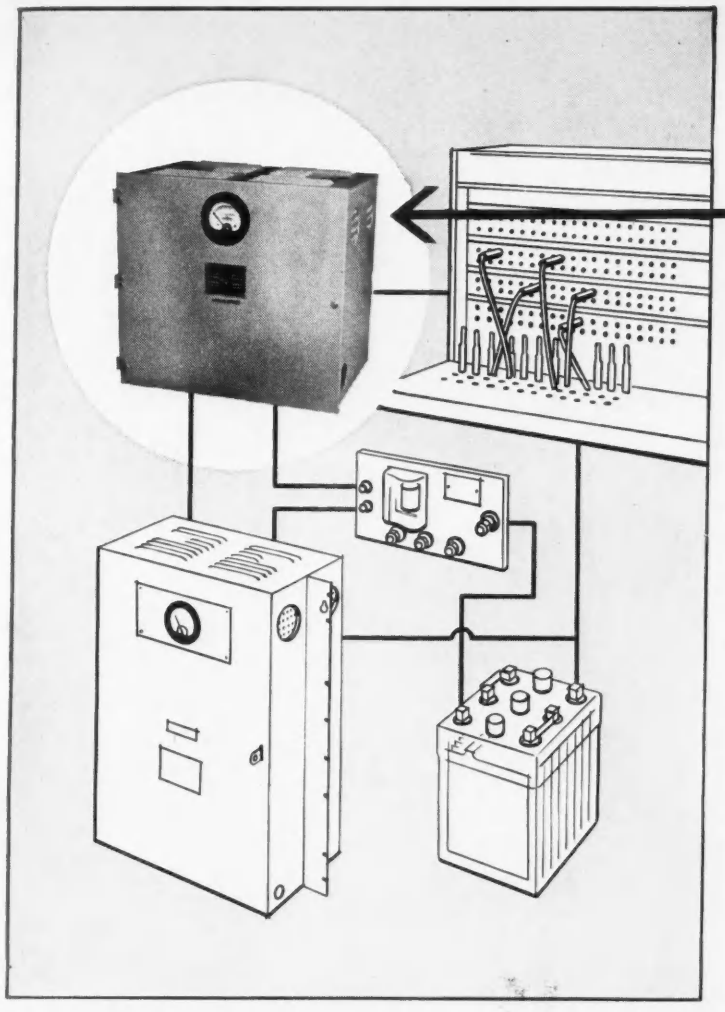
(5) Time Savers can drill concrete, glass, brick, steel, aluminum, wood, fibre glass, plaster, etc.

(6) Time Savers require little power.

To obtain complete information write *Robert W. Bonestead, Time Saver Tools, Inc., Dept. TE&M, 27 E. Park Ave., Mundelein, Ill.*

Insulation Testing

Bulletin GEA-6722 describes the three-step test of insulation system reliability used by the General Electric Apparatus Service Shops. Includes thumbnail outlines: "What You Should Know About DS Insulation Testing of Motors, Generators, and Power Transmission Cables." Write *General Electric Co., Dept. TE&M, Schenectady, N. Y.*



SYSTEM DIAGRAM shows inter-connection of Auxiliary Charger, Recticharger, control relay and load. Auxiliary Charger unit fits into rack with Recticharger. Units are available for adding from 3 to 25 amps to Recticharger capacity.

FOR PEAK LOADS

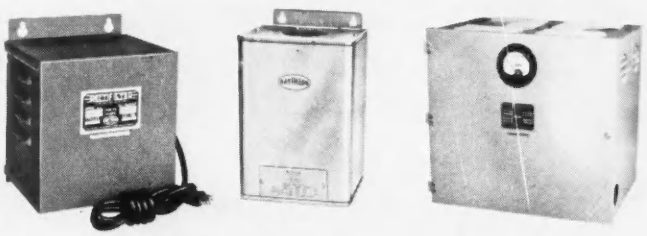
New Raytheon Auxiliary Charger adds Recticharger® load capacity

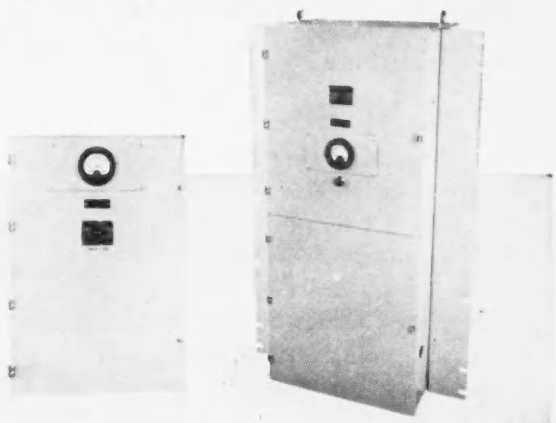
Here is an efficient and economical way to expand the capacity to your Recticharger. With the help of a Raytheon Auxiliary Charger, your present installation handles the additional load during peak demand periods and takes care of "borderline loading"—*too high* for your Recticharger but *too low* to warrant purchase of a higher capacity charger.

The Raytheon Auxiliary Charger—connected through a Raytheon current sensitive control relay—*cuts in* when demand exceeds the maximum current capacity of the Recticharger . . . drops out when the load falls within the Recticharger rating.

The new Auxiliary Charger is the latest of Raytheon advances in telephone power supply equipment. *Please write directly to Raytheon or ask your Telephone Supply man for details.*

THE COMPLETE LINE of 48-volt Recticharger units—designed specifically for the telephone industry covers output ratings from 3 to 400 amps in single and three phase models. Other Raytheon power supply equipment includes Rectifilter battery eliminators and Rectiringers—battery eliminators with 20-cycle ringing power.





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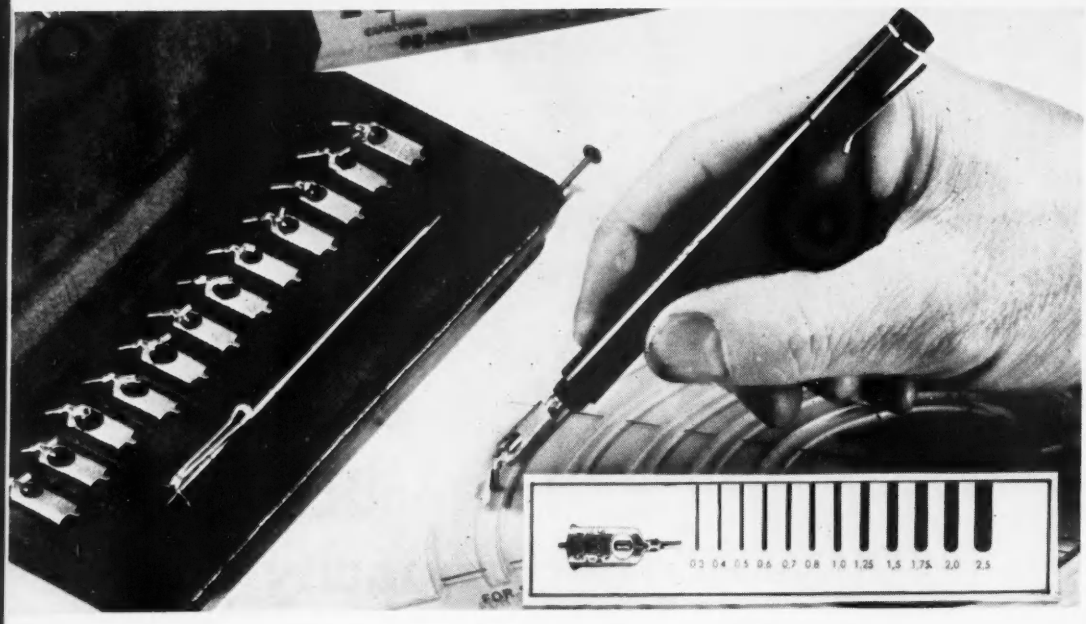


SPECIAL pen kit has fountain-barrelled pen and 12 width set tubular nibs to draw or match ink lines from 0.3 mm to 2.5 mm.

NEW PRODUCT'S SHOWCASE

By DICK REYNOLDS

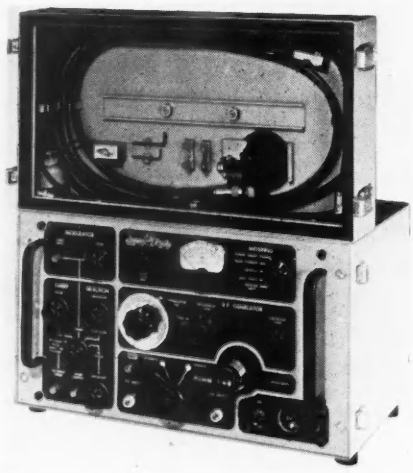
New Drawing Aid

THE INCREASE in use of schematic drawing templates has prompted the design of a specialized pen kit. This kit, known as "Omnigraphos," teams up a fountain barrelled pen with 12 width-set tubular nibs able to draw or match ink lines from 0.3 mm to 2.5 mm — regardless of the curves thrown at it by the most complicated templates.

The offset angle of the interchangeable nibs permits them to hug guide-slot walls tightly, thus increasing speed and accuracy simultaneously. The master kit includes a complete range of nibs, holder, and self regulating ink feed.—For complete data, *write Laramie Chemical Corp., Dept. TE&M, 290 Main St., Stamford, Conn.*

Microwave Test Set

A NEW microwave relay system test set has been announced by Lambda-Pacific Engineering, Inc. Unit is three instruments in one, combining a signal generator, frequency meter, and power meter for testing transmitters and receivers operating in frequency range of 5825 to 7725 Mc. The instrument checks receiver performance without requiring a transmitter to send test signals. Nothing else is needed in testing except an oscilloscope.



Microwave test set.

Designated Model 7100, the test set measures power output, microwave frequency, receiver sensitivity, and receiver response. It determines passband characteristics of microwave RF systems, IF amplifiers, and discriminators. It calibrates path loss measurements, and is a microwave source for SWVR measurements. In addition, the unit checks video performance and color response of receiving equipment without use of a transmitter.

Instrument is metered to check performance of relay systems. Controls are grouped functionally by metering, signal generator, sweep section, and modulator section — thus eliminating the need to range all over the panel. In checking frequency response, unit provides sweep frequency control, so that the operator sees his limits. A counter dial tied directly into the tuning control permits approximate frequency checks, eliminating constant references to wavemeters. Write *Lambda-Pacific Engineering, Inc., Dept. TE&M, 14725 Armita St., Van Nuys, Calif.*

New AC-DC Voltmeter

A NEW voltmeter for measuring voltages up to 600 volts, AC or DC, is now available through the new portable Columbia Model UV-1 Volt-

announcing the long-awaited
ideal ringing generator

THE NEW LORAIN

ALL-TRANSISTOR

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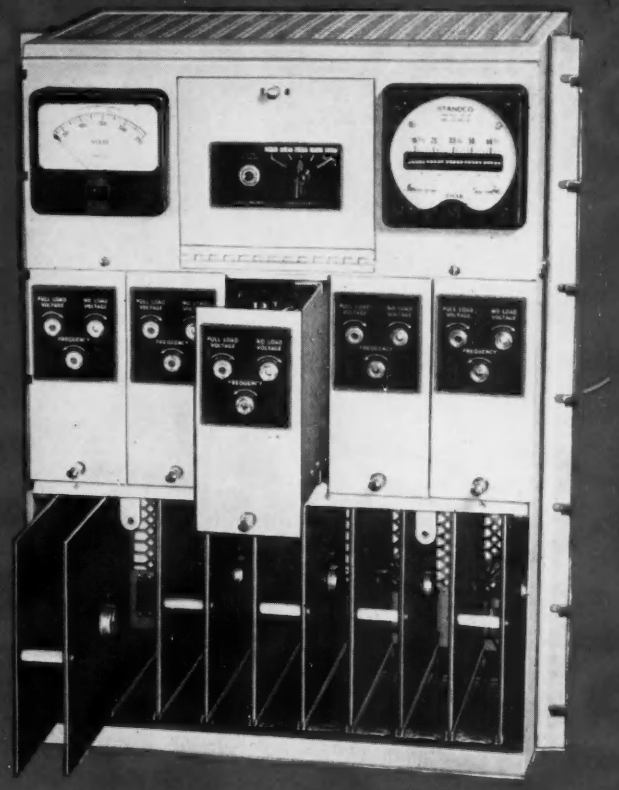

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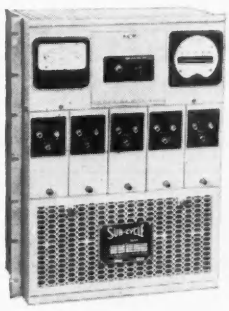

Write for Bulletin 177

The new standard of the industry for both regular and standby service—proved and tested in the field under the most rugged service conditions. Operates from the central office battery at extremely low current drain. Fully transistorized. No moving parts. No vacuum tubes. Permanent maintenance-free operation. Nothing to wear out or deteriorate. Screwdriver adjustment in your plant changes to any desired combination of ringing frequencies. Sine-wave output for maximum ringing effectiveness. Stabilized ringing frequencies with adjustable regulated output voltage. Adjustable reverting tone. Full service load capacity. Rack-mounted with easy access—interchangeable components quickly plug in and out. Overloads safely absorbed without damage. Meters optional.

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TH4		16⅔				33⅓			50				66⅔
TJ5	16				30			42		54		66	
TS5			20		30			42		54		66	
TS4					30			42		54		66	
TK5			20		30		40		50		60		
TK4			20		30		40		50				

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Free Pocket Tool Guide

A free copy of the new Klein Pocket Tool Guide will be sent on request.

Foreign Distributor: International Standard Electric Corp. New York

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7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

New AC-DC voltmeter.

meter which is designed to fit into the palm of the hand. Made of molded plastic material and weighing nine ounces the Model UV-1, size 2" x 2-7/8" x 4-5/8", can be carried in the average pocket. Readings are taken by first inserting the safety plug into a receptacle on the instrument and then connecting the voltage leads to the line. One lead is equipped with an insulated clip, the other with an insulated prod.

By use of a rotary switch, the user can select one of four voltage ranges: 0-150 AC, 0-150 DC, 0-600 AC or 0-600 DC. The 0-150 scale with five volt divisions and the 0-600 scale with 20 volt divisions affords ease of reading any voltage from 0 to 600 volts. Accuracy is 2% on DC, 3% on AC (full scale deflection). For further information write *Columbia Electric Mfg. Co., Dept TE&M, 4535 Hamilton Ave., Cleveland 14, Ohio.*

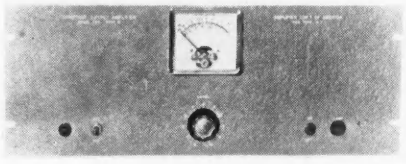
Automatic Volume Control

AMPLIFIER Corp. of America, has developed an automatic volume control amplifier which maintains a constant output within ± 1 db with input changes of 30 db. Automatic gain reduction prevents syllable clipping and slow automatic gain increase avoids automatic control at syllabic frequencies.

The A. V. C. Amplifier consists of a two stage push-pull circuit. The operating conditions of the input stage have been carefully determined so as to provide optimum limiter action with minimum distortion. The input may be connected directly either to a balanced 600 ohm line (with either or neither side grounded) or it may be bridged across a 600 ohm line without upsetting line impedance.

Used in conjunction with radio broadcast transmitters, telephone circuits, public-address installations, wired music systems, factory and department store paging systems. This versatile, low distortion amplifier has a great many other applications including automatic fading between two signals and for compression or expansion (or both) of any program material.

For broadcast application, the gain control feature automatically keeps modulation at peak levels without exceeding modulation limits and eliminates the element of human error. For public address and paging system applications automatic compensation



New volume control amplifier.

is made within maximum limits of 40 db, or 100 to 1 in signal voltage to keep the output level constant (within 2 db) so as to adequately compensate for drastic change in input volume caused by variable distances between announcer ad microphone.

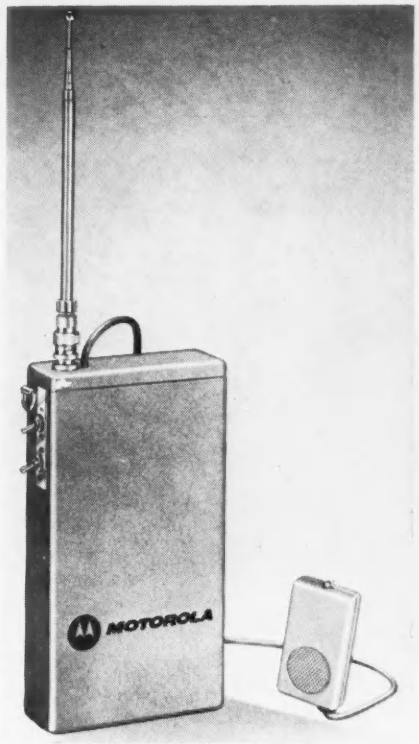
Complete technical specifications and direct factory prices may be obtained by writing to: *Amplifier Corp. of America, Dept. TE&M, 398 Broadway, New York 13, New York.*

New "Handie-Talkie"

ANOTHER step towards the wrist radio concept of personal communications has been accomplished in the new *Handie-Talkie* pocket receiver, and accompanying *Handie-Talkie* pocket transmitter, introduced by Motorola.

The fully transistorized receiver adds a new dimension to 2-way mobile radio systems by extending easy communications capability to the man on foot.

The new Motorola pocket receiver picks up all radio signals on a sys-



New pocket transmitter.

tem's frequency, making possible the immediate contact of key personnel in police, fire, military, construction, forestry, refineries, utilities and manufacturing activities — and any others using 2-way radio. Communications can be maintained with the system's base station or any of its mobile stations.

A second model of the pocket receiver, now being given operational field tests, will provide a selective signaling feature. This means a receiver will pick up only messages meant for the particular individual using the unit. It will ignore all others, even though they are on the same frequency.

Also in the operational field testing stage is the new Motorola pocket transmitter which together with the pocket receiver provides full 2-way radio communications to the man on foot.

The 46 ounce transmitter measures approximately 8 x 4 x 1½ inches. It provides a full 1¼ watt radio frequency output in the 25-54 Mc. band and 1.0 watt in the 144-174 Mc. band. It can easily be carried on one's belt.

The new receiver utilizes 17 transistors and 5 diodes to provide highest sensitivity levels. A built-in an-

This little PARSONS® 77 Trenchliner®

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Only 3 ft.-8 in. wide — and 5 ft.-8 in. "low", Parsons little 77 Trenchliner is just right for installation of underground telephone cables and conduits. Small in size but big in capacity, it has a work range that will surprise you. For instance . . .

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It opens trench from 6 to 18 in. wide — at depths to 5 ft. Digging speeds range from 4.4 in. to 21 lineal ft. per minute. This lets the 77 "inch" its way past cross-pipes, through rock and other underground obstructions — and lets it "open up" for maximum feet of trench per minute on clear right-of way.

The tiny 77 is heavy-duty in every respect. Has sloping, telescopic ladder boom that undercuts cross-pipes, walks, curbs — makes vertical sets. Down-crowd action starts cut fast, holds accurate grade. Self-cleaning, cast-steel buckets are equipped with removable, self-sharpening, point-type teeth. Reversible, power-shift spoil conveyor dodges side obstructions without swerving from grade-line — places spoil bank on either side of trench.

Compact and maneuverable, the 77 Trenchliner works easily in congested areas. It turns within its own length — each crawler is independently driven, independently braked. This little trencher only weighs about 6500 lbs. — handy for quick, easy trailer transport from job to job.

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Learn how the 77 Trenchliner can save time and money on your work. Ask Parsons distributor for a demonstration, or write us for catalog.

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mail to: PARSONS Company, Newton, Iowa *for literature on the 77 Trenchliner*

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STREET.....

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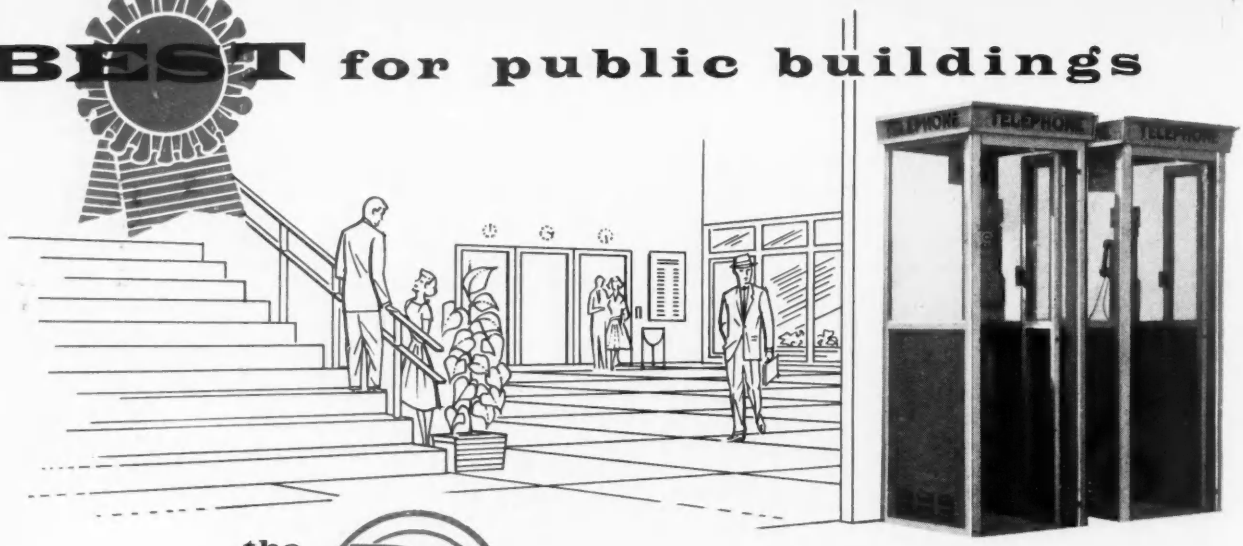

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New Pocket Receiver

tenna is in the case and may be supplemented by a plug-in external antenna for maximum range. The use of semiconductors also contributes to the low power drain characteristics and the high reliability standards of the receiver. Modular high quality printed circuits make up the entire inner chassis which is shock mounted on a rubber cushion in the shatterproof plastic case.

The receiver operates from easily changed mercury cells or nickel-cadmium batteries. The rechargeable nickel-cadmium cells provide up to 20 hours operation per charge, while the replaceable mercury cells operate 120 to 200 hours. It weighs but 10½ to 12 ounces, depending on the type of battery used, and measures less than 6 inches in length, 2½ inches in width and 1⅛ inches in depth. It can clip onto a user's belt or easily fit into a shirt or coat pocket.

Crystal-controlled the receiver is available for operation in either the 25-54 Mc. or the 144-174 Mc. frequency bands, making it usable in virtually all existing and mobile two-way radio systems.

The receiver puts out 100 milliwatts audio power to a built-in speaker, providing clear crisp voice messages, adequate in most applications. Where extremely high noise levels are present, such as in construction or certain manufacturing activities, an external, plug in lapel speaker can

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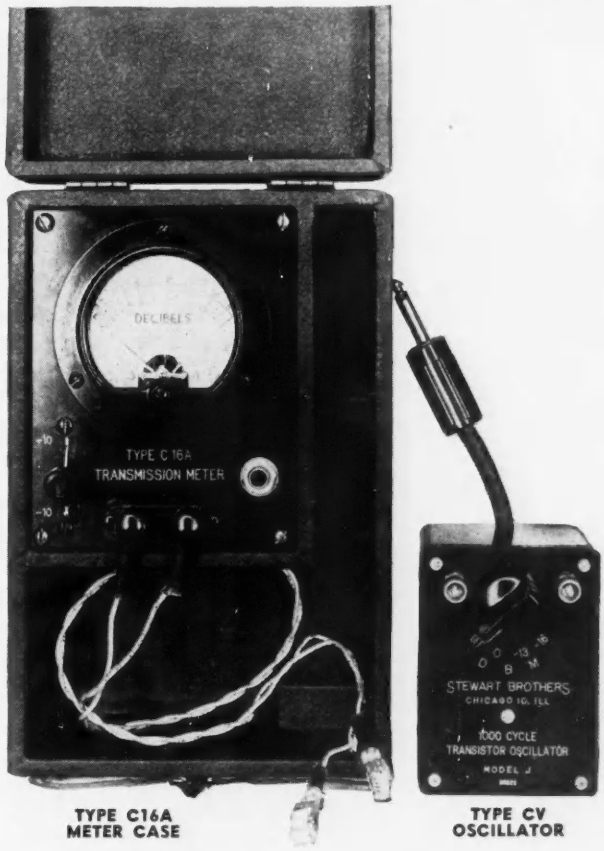

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Case measures 9½" long, 6¼" wide, 3¾" high. Weighs only 4 lbs.

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be used. For more information write: *Motorola Inc., Communications & Ind. Electronics Div.*, 4501 *W. Augusta Blvd., Dept. TE&M, Chicago, Ill.*

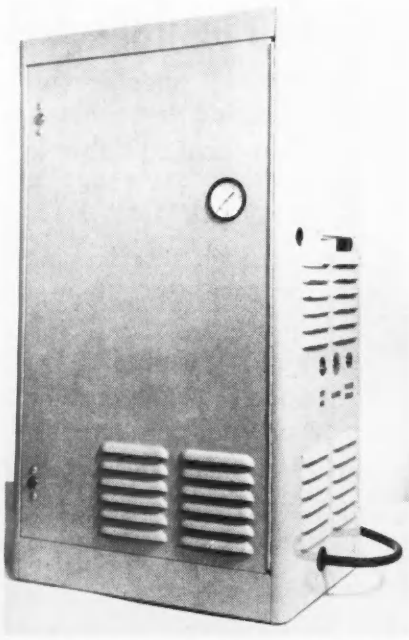
New Air Dryer

PUREGAS Equipment Corp., has announced the development of a fully automatic *Refrigerator Compressor Dryer* to supply dry air for pressurizing aerial and underground cables.

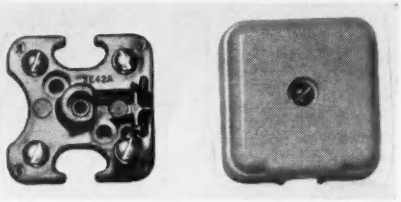
The *Compressor Dryer* is furnished as a complete unit with integral air supply and alarm facilities, encased in a baked enameled steel cabinet. Available in sizes to handle the pressurization requirements of the smallest long distance repeater stations and CDO's up to the largest central offices and exchanges.

The refrigeration drying principle utilized is quite simple. In operation, room air is compressed to several atmospheres and delivered to a storage tank where it is cooled to a temperature above freezing. As a result of the compression and cooling processes approximately 75% of the moisture in the air is condensed to liquid form. A further reduction in the moisture content of the air is effected during the expansion from the high pressure in the storage tank to that maintained in the cable. This method of moisture removal is capable of reducing the relative humidity of ambient air from 100% at high temperature to approximately 2% at 70°F.

This refrigeration system of drying makes possible not only an extremely reliable maintenance free dryer but one which is less expensive than chemical systems and more economical than nitrogen for continuous feed pressurizing of cable systems. — Write *Puregas Equipment Corporation, Dept. TE&M*, 578 *Oak Street, Copiague, L. I., New York.*



New refrigerator compressor dryer.



S. E. 42A 4-terminal connecting blocks with plastic covers in brown, ivory, or to match colored telephones are now being manufactured by Suttle Equipment Corp. The plastic covers eliminate shorting out problems caused by metal covers on 4-terminal connecting blocks. Of high gloss material the plastic units present pleasing appearance as well. Suttle also manufactures the S. E. 44A ten terminal block and three sizes of plastic covers (S. E. 101A, S. E. 101C, and S. E. 101D) for ten terminal blocks. For further information write: *Suttle Equipment Corp., Dept. TE&M, 135 S. LaSalle St., Chicago, Ill.*

Pole Line Hardware

THE POLE Hardware Division of Malleable Iron Fittings Co. has announced a new 12-page catalog of *Pole Line Hardware* for the Telephone Industry. The book describes complete line of MIF hooks, guy and cable clamps, etc., also explains how lower installation costs and simplified maintenance are effected by recently developed design details. Among featured items are rural cable clamps for heavy and light duty, guy hooks designed to place the thru bolt in tension, universal guy clamps with the "come along" grip that increases as the load increases, cable suspension clamps with large area pads and spurs to resist vertical movement, universal angle spar connectors designed to reduce push brace erection costs. Specifications, installation data and price information are included. Write: *Malleable Iron Fittings Co., Pole Hardware Div., Dept. TE&M, Branford, Conn.*

CROSS COUNTRY REPORT

COURTS and COMMISSIONS

By JOHN G. REYNOLDS

NEW YORK commission denies $375,000 rate hike for General of Upstate New York . . . Maryland Senator claims commission has "leaned over backwards" to favor rate hike applications . . . Wisconsin rooming house operators win residential rates . . . General of Florida seeks $8,000,000 annual increase in rates.

N. Y. Commission Denies General Tel. Rate Bid

- **Commission denies General Tel. of Upstate N. Y. permission to boost rates to produce about $375,000 added annual revenue; tells company it will approve rates limiting revenue increase to $100,000 maximum.**

PLANS of the General Telephone Co. of Upstate N. Y., Inc., to increase rates by amounts sufficient to produce about $375,000 additional annual revenue and earn a 7.14% rate of return on the fair value of its telephone plant hit a snag on Aug. 26 when the New York Public Service Commission denied the company's petition but said it would approve tariffs limiting the revenue boost to a maximum of $100,000 to produce an estimated return of nearly 6.5%.

In seeking permission to increase its rates, Upstate General claimed its present rates, which have been in effect since June 1952, are insufficient to permit a fair rate of return on the fair value of its telephone plant. It estimated its annual operating expenses would increase by almost $191,000, a large percentage of which was attributable to wage increases.

In proposing the new rates, the company said the rates would provide it with a 7.14 percent rate of return on the fair value of its telephone plant.

In its proposal, the company sought monthly increases of $1.75 for business service and 50¢ for residential service. It also proposed to increase charges for extension stations and to advance 10 exchanges to the next higher rate groups because of the increased number of stations served.

In a report to the Commission based on public hearings on the matter, Examiner William T. Wilkinson stated that in computing the revenue needs of Upstate Geenral the company underestimated by $47,000 its probable receipts from toll service and other items and had overestimated some anticipated operating costs.

In this connection he noted that "the company's estimated net increase in operating expenses, unadjusted, was $175,721 based on existing rates (resulting from increased business), with estimated net increase in operating expense before taxes $235,386, or expected deficiency in revenue during 1958 of $59,665 based on continuance of the present rates and charges."

Examiner Wilkinson commented that the 7.14% rate of return would be "somewhat excessive" and that a combination of the additional revenues to be derived from new customesr plus a $100,000 increase over present rates "will produce an estimated return of approximately 6.5%," an amount the commisison deemed sufficient for company requirements.

Maryland Utility Law Study Asked

- **Senator Goodman claims commission has "leaned over backwards" to favor utility applications for financial relief.**

A REQUEST that the Maryland State Legislative Council conduct a thorough investigation of the activities of the State Public Service Commission was made by Senator Philip H. Goodman, Baltimore Democrat, in a letter (Aug. 21) to State Senate President Louis L. Goldstein, Calvert Democrat, who heads the council.

Goodman said his request was prompted by his conviction that the present and earlier commission "has leaned over backwards" to favor utility applications for financial relief. He proposed that a three-man committee of the council be assigned to attend a hearing on the Baltimore Transit Company's request for a 5-cent rush-hour fare boost.

York Telephone Tax Claim Hurdles PUC

- **$55,000 refund in profit levies and interest due in accounting shift.**

THE PENNSYLVANIA Public Utility Commission (Aug. 13) approved an accounting change by York (Pa.) Telephone & Telegraph Co. which will enable the company to claim an approximate $55,000 refund in federal excess profits taxes and interest.

The company was allowed to transfer $675,000 from its depreciation re-

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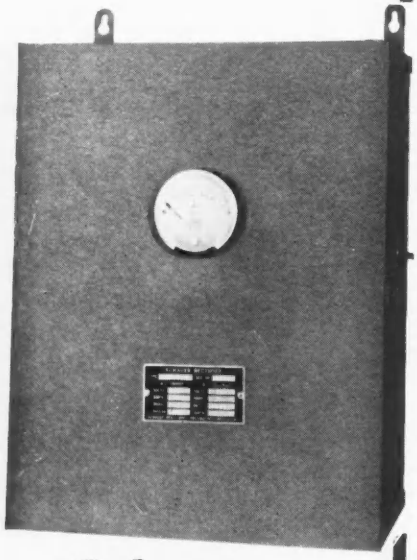

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serve account to its unappropriated surplus account in the bookkeeping switch required to make it eligible for the tax rebate.

The $675,000 represents a sum in excess of the company's reserve requirements, the commission said in reporting its decision.

The agency rejected as improper the utility's proposal to record the money in still another account to show a higher capital investment. But transfer to unappropriated earned surplus is logical and "does not adversely affect" consumers, the commission said.

Approval of the revised computation permits the company to recover about $43,000 in taxes paid for the years 1951, 1952 and 1953, plus about $12,000 interest.

Commission sanction of the change, however, was given on condition that the $675,000 cannot be made the basis for payment of any cash dividends to stockholders without the agency's permission.

The company said at hearings on its proposal to make the bookkeeping change and thereby claim the tax refund that it would not affect its subscribers in any way.

Rooming House Operators Win Pay Phone Argument

- **Commission orders Wisconsin Tel. to discontinue charging business rates to customers who provide telephone service for rooming house tenants.**

LAST MONTH University of Wisconsin campus rooming house operators at Madison won a two-year argument with the Wisconsin Telephone Co. when the Wisconsin Public Service Commission (PSC) ordered the phone company to discontinue charging business rates to customers who provide telephone service for rooming house tenants, and to apply its residential telephone service rate to such customers. The PSC order also provided that upon demand of rooming house tenants the telephone company shall furnish semi-public (pay telephone) service.

The PSC had held hearings on the dispute in January of this year at the instigation of the University Independent Housing Association, a group of Madison rooming house proprietors. The hearings were ordered when the PSC staff was unable to effect a compromise between the rooming house owners and the company, after the phone company started charging business rates for phones in the houses.

In 1956 the Wisconsin Telephone Co. began changing the rate classification of student rooming houses in Madison with accommodations for six or more students. Before that the phones had been charged at residential rates. The PSC noted that this change in policy was based on a Wisconsin University policy requiring a full-time supervisor in rooming houses occupied by six students or more. It was also based on a Madison zoning ordinance defining a boarding or lodging house as one that houses five or more persons.

The phone company was willing to provide residence telephone service for roomers or rooming house supervisors on an individual basis in their own quarters. But the company contended that where service was made available to all roomers it is used in connection with a business enterprise.

The PSC order noted, however, that the company had conceded its own-invoked new policy did not strictly adhere to existing PSC rules and regulations.

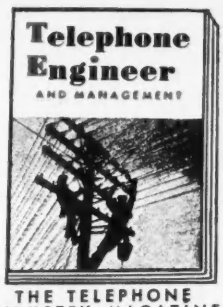
Until 1956 all student rooming house proprietors in Madison were traditionally serviced with phones at residence rates, the PSC noted.

The PSC observed that the margin of profit of most rooming houses is narrow, and that the difference in paying for the more costly business rate might force some of them out of business.

Telephone Rate Boost Requested In Florida

- **General of Fla. seeks $8,000,000 annual increase in rates to net an additional $4,000,000 annually.**

A PETITION filed with the Florida State Utilities Commission by the General Telephone Co. of Florida asked (Aug. 19) permission to increase rates to net an additional $4 million annually. Due to the big bite



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A PRE-VUE OF THE 61st USITA CONVENTION

A complete guide to the 61st annual convention of the U. S. Independent Telephone Association featuring a special article by *Clyde S. Bailey*, USITA executive vice president; convention program, guide to exhibits, data on general sessions and conferences.

THE "4th DIMENSION" IN REGULATION

This article by one of America's top regulatory commissioners proves that wise public regulation means a careful balance of the interests of the specific parties — the user who uses the services, the employe who provides it, and the investor who makes it possible.

ELECTRONICS AND YOUR FUTURE

The industry may be in electronics but it is in the "feet-wet" stage. The big moves are yet to come and this article, tells "why," "when," and "where".

CAUSES and CURES of INDUCED NOISES

Readers asked for this article and our author answered their requests by preparing an article that (1) discusses causes of line noise, and (2) describes methods of eliminating or greatly reducing the noise.

GOOD SERVICE STARTS WITH PROPER INSTALLATION

TE&M's new Operating Manual on "Station Installation" got off to a good start in the Sept. 15th issue. Chapter Two, scheduled for the Oct. 1 issue will discuss: Drop distribution methods — from terminals and in open-wire leads; and requirements for drop-wire spans.

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2009 Columbia Avenue, Rockford, Ill.

taken by federal taxes, the actual rate increase necessary to net the company this amount would approximate $8 million.

Increased costs were cited by the company as the basis for the proposed rate boost. It said that with the higher rates, its return on its investment would be 7.25 per cent.

The company requested rates that would vary according to the number of telephones in each city, and cities within each numerical bracket would have the same rates under the proposal.

Indiana Upholds Order on Intrastate Rates

- **Denies complaints on April 3 order authorizing Indiana companies to boost intrastate rates.**

PETITIONS of four customers of telephone companies complaining about toll rate increases granted April 3 to Indiana Bell Telephone Co. were denied last month by the Indiana Public Service Commission.

The firms, plus patrons of Illinois Bell Tel. Co. in Lake County, protested the rate increases should not apply to all telephone companies in the state without separate hearings.

But the PSC ruled it is proper to apply the rates to all telephone firms in the interest of fairness, thus upholding its April 3 order authorizing Indiana Bell to raise its intrastate rates, and authorizing all other Indiana telephone companies to follow suit.

Appointed Florida Utility Commission Will Be Sought

- **Chairman Boyd proposes commission members serve by appointment of the governor.**

A PROPOSAL that members of the Florida State Railroad and Public Utilities Commission serve by appointment of the governor rather than by popular election was made (Aug. 21) by its chairman, Alan Boyd.

Announcing that he plans to seek the change from the 1959 State Legislature, Boyd also suggested that the four-year terms of the commissioners be extended to at least six years.

Two of the commission's three members, Jerry W. Carter and Wilbur C. King, currently are seeking re-election for four-year terms.

Boyd stressed his proposal was not to be construed as critical of either of his fellow commissioners. In fact, he explained, one of the compelling motives for his proposal was the difficulty of mounting a successful campaign. He said it was almost impossible to arouse sufficient public interest in a commission campaign to raise enough money to inform the voters of the issues.

The only people really interested in the makeup of the commission, Boyd said, are the transportation and utility companies under its regulation. They are prohibited by law from contributing to campaigns.

Further contending that the public would be better served by appointed officials, Boyd said that because of the complexities of the job, it takes a commissioner about two years to really know what he is doing. "He then spends the rest of the time worrying about whether he can be re-elected," Boyd added.

Wisconsin Independent Adds To Service Area

- **United Tel. Co., Monroe, Wis., assumes service obligations of 12 small companies.**

THE WISCONSIN Public Service Commission gave its official blessing to plans of the United Tel. Co., Monroe, Wis., to assume the service obligations of 12 small switcher companies in Green and Lafayette counties.

The companies, now switched at United exchanges will discontinue service when United completes its dial conversion program and assumes their service obligations.

Companies involved in the order are located at Monroe, Monticello, Blanchardville, and South Wayne.

New Corporate Issues Decline in 2nd Quarter

- **Communications companies offered $133,000,000 in 2nd quarter compared with $922,000,000 in the first.**

NEW CORPORATE securities offered in the second 1958 quarter de-

ACME VISIBLE

UNDER-GLASS BULLETIN HOLDER

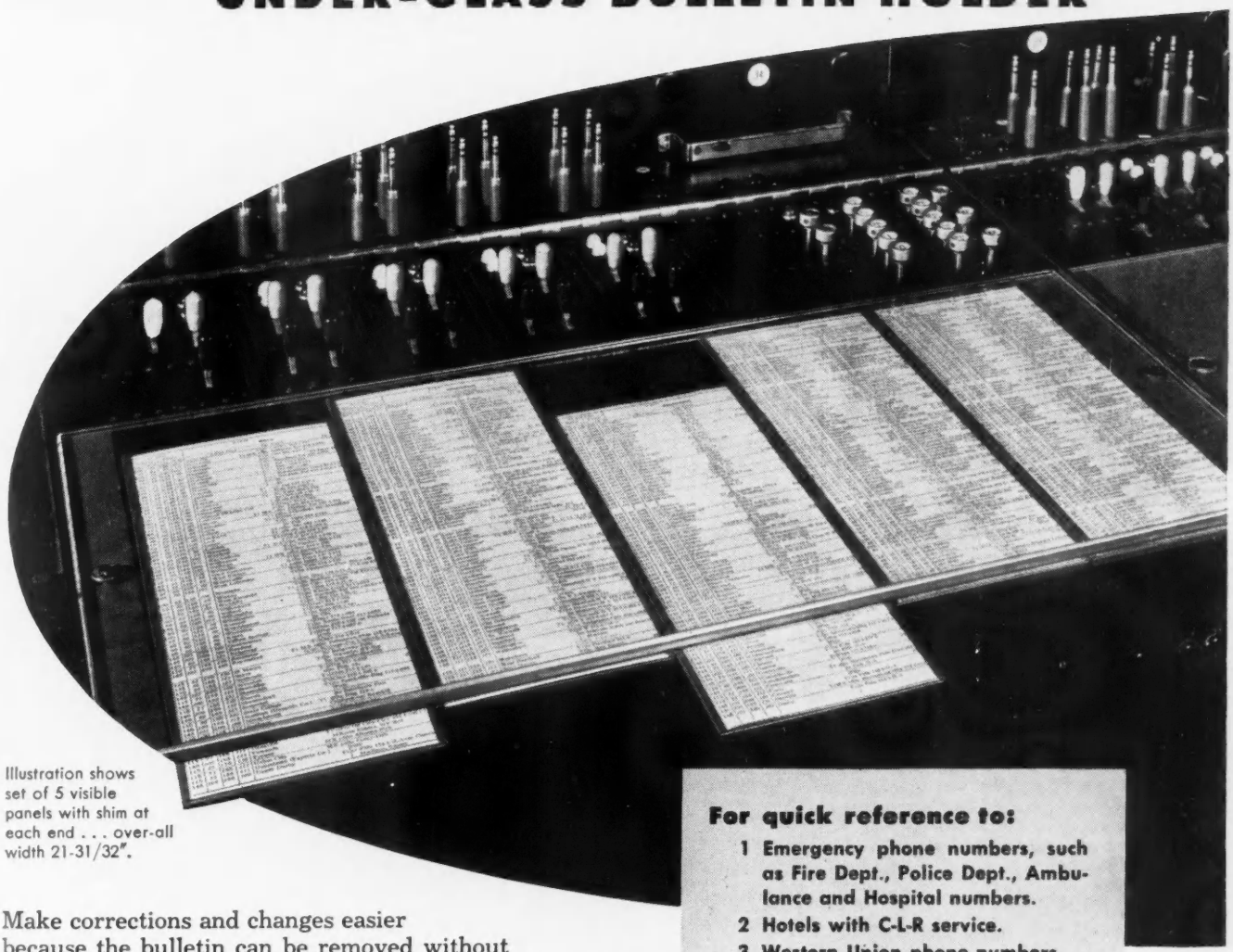


Illustration shows set of 5 visible panels with shim at each end . . . over-all width 21-31/32".

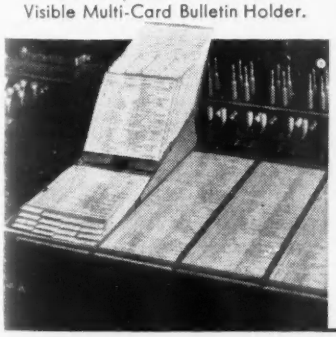
Make corrections and changes easier because the bulletin can be removed without loosening the glass. Being divided into a number of panels only the panel (page) to be corrected need be removed. One piece steel construction, flanged at back and side edges to hold the bulletin in place. The front edge is formed to provide a "pull" to slide panel out. A shim at each end panel makes the over-all width the same as the Bulletin Glass space. Shims are slightly thicker than panels and have a slot through which the Plexiglass screws hold the glass firmly, and permit sliding the individual panels in and out. Made to meet dimensional requirements both as to individual panels and over-all size of boards.

For quick reference to:

1. **Emergency phone numbers, such as Fire Dept., Police Dept., Ambulance and Hospital numbers.**
2. **Hotels with C-L-R service.**
3. **Western Union phone numbers.**
4. **Telephone numbers of local companies receiving frequent long distance calls.**
5. **Frequently called direct circuit points and tributaries.**
6. **DSA Toll points.**

Acme Visible Equipment has been designed for telephone use by Acme Systems Engineers in close cooperation with practical, experienced telephone experts. Tell us your requirements and receive our suggestions and quotations.

Used in conjunction with an Acme Visible Multi-Card Bulletin Holder.



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S-958

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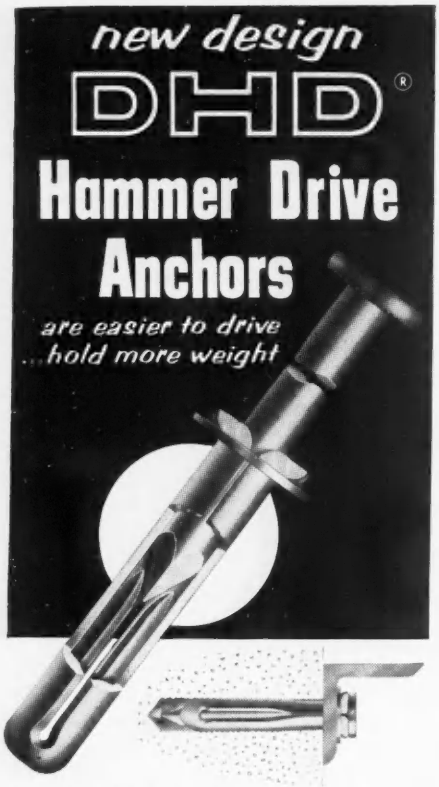
☐ Have representative call. Date_____ Time_____

☐ We are interested in Acme Visible equipment for_____ (KIND OF RECORD) records.

COMPANY_____ ATTENTION_____

ADDRESS_____

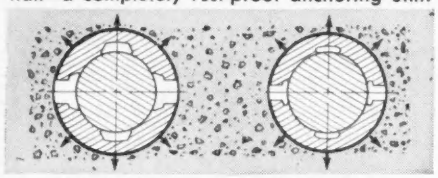
CITY_____ ZONE_____ STATE_____



The DIAMOND DHD Hammer Drive Anchor, standard masonry fastener for the telephone and utility fields for nearly 30 years, has now been greatly improved with a newly engineered design, featuring

Internal Ribbed Construction

The addition of these ribs provides variable radial expansion for tight fit regardless of variation in hole size, developing the greatest *sustained* holding power ever possible. Aluminum anchor and hot dipped galvanized nail—a completely rust-proof anchoring unit.



STANDARD APPLICATION

Pressure of nail against ribs expands shield outward forming a tight, secure fit in hole.

UNDERSIZE APPLICATION

Wedging action of nail against ribs flattens them around nail shank as they transmit pressure outward. Grip is firm and positive. Hammer it home and it stays put.

Metal Won't "Creep"

Special aluminum alloy shield can't "creep." Because of this, the DHD Anchor withstands amazingly high sustained loads.

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clined 12% to $2.9 billion from the first quarter's $3.3 billion, the Securities and Exchange Commission has reported.

The S.E.C. report, which excludes sales by investment companies, said a heavy increase in offerings by manufacturing companies was more than offset by a decline in offerings by communications companies during the second quarter.

Communications companies offered only $133 million of new securities in the second quarter compared with $922 million in the first, which included a $178 million issue by the American Telephone & Telegraph Co., the S.E.C. said. In the second quarter of last year, communications offerings totaled $272 million.

Nebraska Commission OK's United Tel. Rate Boost

- **New Rates will produce an additional $94,290 in gross revenues. Company had sought $176,952 increase.**

THE UNITED Telephone Co. of the West, Scottsbluff, Neb. has been given state Railway Commission authorization to increase its rates to produce an additional $94,290 a year in gross revenue from its Nebraska intrastate operations. The company had requested a $176,952 increase.

United Telephone Co. of the West received its last rate increase in 1927. Last year's Nebraska earnings of $92,906.33 were "not sufficient to constitute a fair return on the property used," the company said.

New Delaware Phone Rate Boosts Asked

- **Proposed rates expected to produce additional net income of $1,073,700 annually.**

AN APPLICATION for additional new tariffs was filed with the Delaware Public Service Commission (Aug. 15) by the Diamond State Telephone Co.

The proposal would increase present rates, depending on the type of service, from 45 cents to $1.20 a month for residence customers, with corresponding increases for business customers throughout the state.

Commission Chairman Norman B. Baylis indicated the commission would probably hold public hearings on the application. The commission last Jan. 15 denied the company $773,334 of $1,880,000 sought in annual increased rates. The company appealed the PSC ruling to the Superior Court, which reversed four of the commission's rulings and paved the way for restoration of $268,703 out of the $778,334 denied to the company by the commission.

In the most recent action prior to filing of the new application by the company for rate increases, the commission announced it intended to appeal to the State Supreme Court from the Superior Court decision.

The proposed new rates, expected to provide additional annual net income of $1,073,700, were scheduled to go into effect on Sept. 15 if not held up by the commission.

Mt. States Appeals Court Denial of Rate Increase

- **Seeks approval of rate boosts ranging from 15 to 33% on business service and 25 to 58% on residence service.**

MOUNTAIN States Telephone & Telegraph Co. (Aug. 21) filed notice of appeal from a district court denial of higher telephone rates in Montana.

Lewis and Clark County District Judge E. E. Fenton last June 23 rejected a company request that he allow the rate increase and prevent the Montana Public Service Commission from interfering with its collection. The company went to court after the commission, by a 2-to-1 vote, ruled the proposed higher rates were not justified.

The increases sought by the company range from 15 to 33 per cent, on business service and 25 to 58 per cent on residence service. That would increase company revenues by an estimated $127,000 a month.

Arkansas PSC Rules On Local Tax Issue

- **Arkansas utility authorized to pass "excessive" city franchise taxes on to its customers.**

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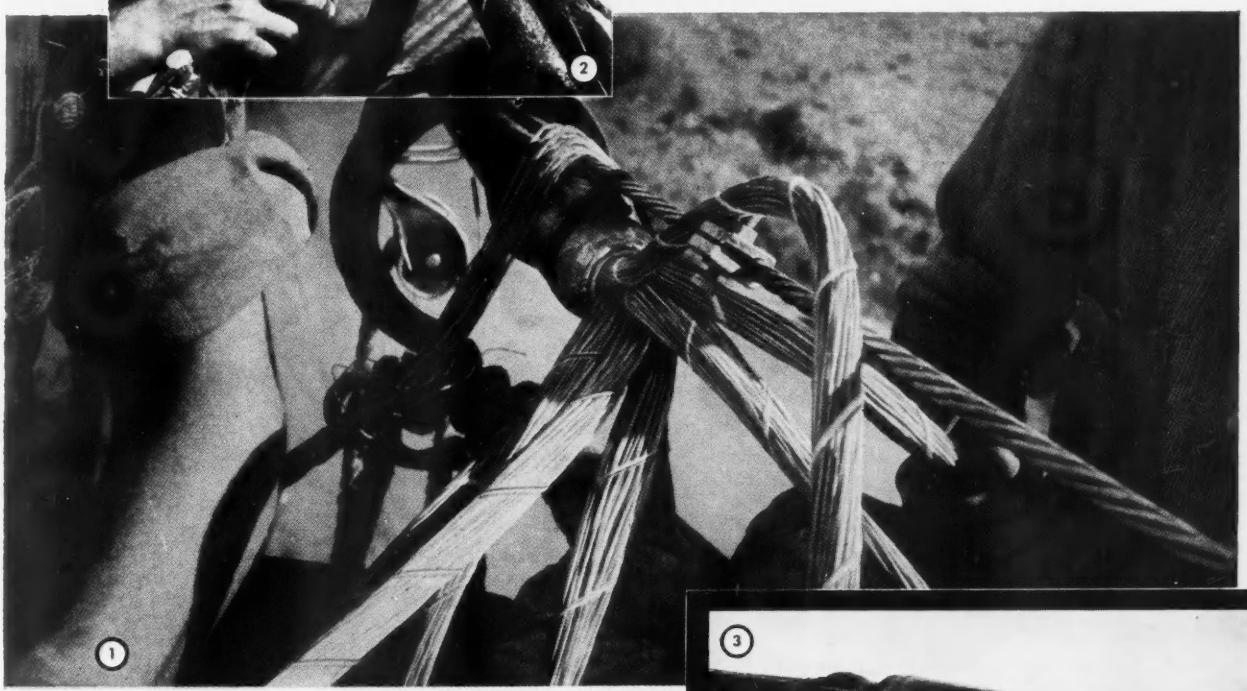

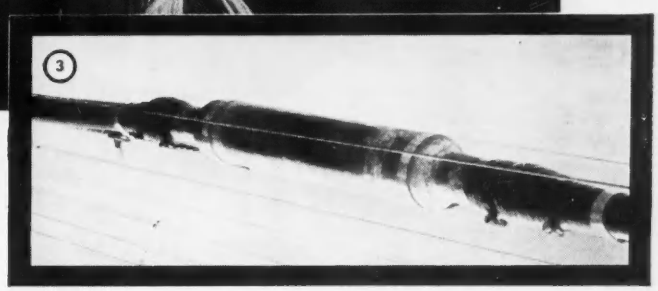

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Arkansas area, was authorized by the Arkansas Public Service Commission (Aug. 7) to pass "excessive" city franchise taxes on to its customers.

The commission issued the ruling on a petition filed by Mid-South in April, 1957, asking an overall ruling on the question of municipal privilege, or franchise taxes.

Affected by the order are about 55 towns served by the company, ranging from Lake Village to Walnut Ridge in the eastern half of the state. Organized in 1950, the company has offices in Little Rock.

The order held that the company must "absorb" an annual privilege tax of one dollar a year per customer, or a minimum of $100 a community, if less than 100 customers are served in any one town.

The decision could result in an upgrading of city taxes in some towns, a downgrading in others, depending on actions of the various city councils.

The PSC ruled that any franchise taxes over the $1 per customer can be passed on to the public in the form of extra charges on monthly gas bills. The charges, however, would apply only to city customers, since rural areas don't get the benefit of city franchise taxes.

The company filed its original complaint on taxes enacted by Walnut Ridge and Dermott. Later, the entire system was incorporated into the hearing, with the PSC agreeing to set a standard by which the company must pay franchise fees.

Walnut Ridge's present franchise tax against the company is $1,250 a year. A PSC spokesman said that if the town has 1,000 customers — a figure he used merely as an illustration — the "absorbed" tax by Mid-South would be $1,000 a year. But the additional $250 could be passed on to the consumer there in the form of monthly tax billings added to the gas charges, he said.

The PSC stressed that it wasn't attempting to tell cities and towns within the Mid-South system what its franchise taxes should be. The order does, however, place a limit on the amount of tax the gas company must absorb within its own operating costs.

Not to pass on the excess charges, the commission held, would be discriminating against rural customers served by the company who don't get the benefit of city franchise taxes.

Dividends Reported

To obtain prompt publication of your company's Dividend Announcement, please airmail four copies to TELEPHONE ENGINEER & MANAGEMENT, 7720 N. Sheridan Rd., Chicago 26, Ill.

Company	Period	Amt.	Payable Date	Record Date
Amer. T. & T.	Quar.	$2.25	10-10-58	9-10
Gen. Tel., Wis. (PF)	Quar.	1.12½	10-1-58	9-15
Hawaiian Tel.	Quar.	.25	9-12-58	8-23
New Eng. T. & T.	Quar.	2.00	9-30-58	9-10
Pacific T. & T.	——	1.75	9-30-58	9-15
Pacific T. & T. (PF)	Quar.	1.50	10-15-58	9-30
Rochester Tel.	Quar.	.25	10-1-58	9-15

Telephone Rate Boost Posted In New Mexico

- **Mountain States Tel. boosts rates in New Mexico to increase revenues about $277,600 annually.**

MOUNTAIN STATES Telephone & Telegraph Co. plans to increase New Mexico telephone rates Sept. 4

Summary of Earnings Reports

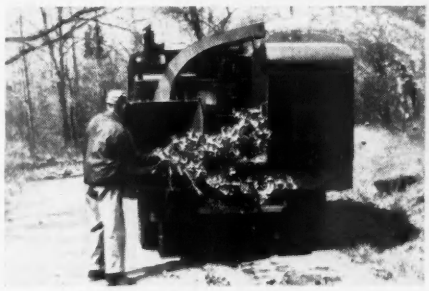
A summary of telephone corporation earnings reports appears below. To insure prompt listings of your company's reports in this department please air mail four copies of report to TELEPHONE ENGINEER & MANAGEMENT, 7720 N. Sheridan Rd., Chicago 26, Illinois.

Company	Period	Net Income 1958	Net Income 1957	Per Co. Share 1958	Per Co. Share 1957
Bel. Tel. of Pa.	6 mos. June 30	$21,784,700	$21,837,459	——	——
British Col. Tel.	6 mos. June 30	1,998,855	2,359,865	.79	1.33
Calif. Interstate Tel.	Quar. June 30	115,275	126,383	(1) .20	(1) .33
Cal. Interstate Tel.	12 mos. June 30	446,086	398,610	(1) .87	(1) .99
Central Tel.	6 mos. June 30	913,030	1,002,949	(2) .85	.98
Citizens Util.	Quar. June 30	341,869	305,593	.32	(3) .28
Citizens Util.	6 mos. June 30	633,244	583,454	.59	(3) .54
Citizens Util.	12 mos. June 30	1,326,214	1,195,182	1.23	(3) 1.10
Gen. Tel.	7 mos. July 31	27,075,000	26,452,000	(4) 1.75	1.77
Gen. Tel. Corp.	12 mos. July 31	46,355,000	46,765,000	(4) 3.03	3.21
New York Tel.	7 mos. July 31	61,246,259	49,131,902	——	——
Rochester Tel. (N. Y.)	12 mos., June 30	1,720,400	2,125,021	(5) 1.04	(5) 1.40
S. W. States Tel.	6 mos. June 30	706,002	621,227	——	——
United Utilities	6 mos. June 30	3,216,750	2,805,073	(5) .80	(5) .88
West Coast Tel.	6 mos. June 30	727,726	834,851	.48	.69
Western Union	7 mos. July 31	4,819,120	6,777,689	.77	1.09

(1) Based on average number of shares outstanding during the period.
(2) On shares outstanding at close of period.
(3) Based on shares now outstanding.
(4) Based on average number of shares during period.
(5) On shares outstanding at close of period.

Telephone and Power Companies
CUT BRUSH DISPOSAL COSTS 25 TO 50%
with FITCHBURG CHIPPERS

Crewmen from Rockland Light and Power Company, now Orange & Rockland Utilities, Nyack, N. Y. use special aerial ladders for pruning topmost branches.



BRUSH DISPOSAL METHOD No. 1
Rockland Light and Power Company crewman blows chips from FITCHBURG CHIPPER along roadway.

BRUSH DISPOSAL METHOD No. 2
Rockland Light and Power Company crewman blows chips from FITCHBURG CHIPPER into truck bin.

Some of the many Telephone and Power Companies using Fitchburg Chippers

Arizona Public Service
Phoenix, Arizona
Atlantic City Electric Company
Atlantic City, New Jersey
Central Hudson Gas and Electric Co.
Newburgh, New York
Consumers Power Co.
Jackson, Michigan
McDaniel Telephone Company
Salkum, Washington
Millington Telephone Co.
Millington, Tennessee
Mt. Vernon Telephone Corp.
Mt. Vernon, Ohio
Missouri Power & Light Co.
Hermann, Missouri
New Jersey Bell Telephone Co.
Vineland, New Jersey
Ohio Central Telephone Corp.
Patuskala, Ohio
Pacific Telephone and Telegraph
Northwest Area
Portland General Electric
Portland, Oregon
Public Service Co. of Oklahoma
Lawton, Oklahoma
Shawnigan Water and Power Co.
Quebec, Canada
Somerset Telephone Co.
North Anson, Maine
Southern California Edison Co.
Los Angeles, California
Valley Telephone Company
Silverton, Oregon
West Jersey Telephone Co.
Belvidere, New Jersey

A FITCHBURG CHIPPER will help get your brush disposal job done with *fewer men at less cost*—in any weather, wet or dry. No more loading, hauling, dumping, burning. Chips may be automatically loaded on truck or blown along right-of-way to keep down weeds.

SAFETY IN OPERATION: Exclusive Fitchburg spring-activated feed plate automatically adjusts as wood of different sizes is fed into the machine. This feature allows you to chip larger size wood without extra power. It reduces shock action, protects the operator in case foreign materials are accidentally fed during operation.

MINIMUM MAINTENANCE: No heavy fly wheel to cause clutch strain or bearing failure. Easily maintained by your own field personnel.

ONE YEAR GUARANTEE: Only Fitchburg Chippers give you *all* these features, backed by the experience and engineering skill of the world's pioneer manufacturer of wood chipping equipment. For a facsimile of the exclusive Fitchburg guarantee and color brochure described at right, mail the coupon today.

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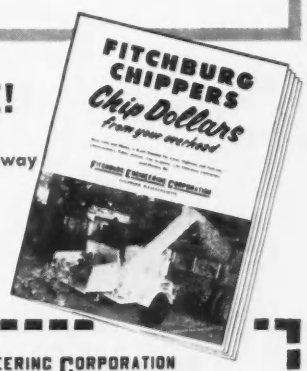

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SPECIFICATIONS

RESPONSE (±1 db)	20 to 20,000 cps.
OUTPUT CONSTANCY	±1 db (30 db input change)
S/N RATIO	60 db
HUM AND NOISE	—60 dbm
INPUT IMPEDANCE	600 ohm c.t.
OUTPUT IMPEDANCE	600 ohm c.t.
LINE VOLTAGE	117 volts, 50/60 cycles
DIMENSIONS	19" x 7" x 8¾"

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The proved and standard protection for Underground Telephone Cables. Highest quality and full line of shapes.

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at Alamogordo, Tularosa, Cloudcroft, Las Cruces, La Mesa, Farmington, Grants and Aztec.

State Corporation Commission Chairman James F. Lamb said a total of 32,332 telephones and extensions are involved.

The rate boosts were posted on the company's contention, upheld in other cases several months ago by a two-member commission majority, that a 1954 general rate order made provision for automatic stepups in certain instances where an exchange grows beyond certain breakover points.

Lamb said the new schedules had been filed and that commission members would determine whether any hearings or investigations would be held.

Pacific T & T Plans Offering In October

- **Plans $239,000,000 financing operation — $80,000,000 in 32-year debentures and $159,460,400 of common stock.**

PACIFIC Telephone & Telegraph Co. expects to raise $239 million late this fall through the public sale of long-term debentures and the offering of common stock to its shareholders.

Pacific T. & T. said proceeds from the two-part financing operation would be used to reimburse the treasury for capital expenditures and to repay temporary borrowings. It was previously estimated that expenditures during 1958 for the company

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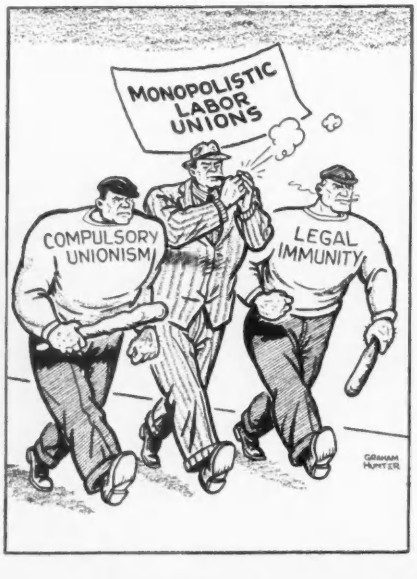

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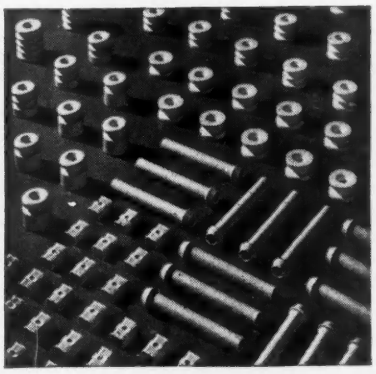

Telephone industry acceptance has *proved* Porcelain Products . . . the reliable line of telephone insulators. Porcelain Products assures unvarying uniformity . . . strength . . . precision manufacture and rigid inspection—always dependable. A complete line for every application. Keep your service standards high—with Porcelain Products' telephone insulators. Backed by 60 years experience producing porcelain insulators. Ask you jobber or write us direct.

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would amount to $334 million. From 1946 through 1957, the company borrowed $675 million through long-term debenture sales and sold common stock, par valued at over 947 million, for expansion and improvement of facilities.

The new financing plan would consist of $80 million of 32-year debentures — due November 1, 1990, and to be sold competitively — and 1,594,604 shares ($159,460,400) of common stock.

Applications to state regulatory authorities requested authority to make the additional common stock offering to shareholders at $100 a share in a ratio of one new share for each eight common and preferred shares held — on a date to be fixed later by Pacific T. & T.'s board.

Pacific T. & T. plans to file the debenture and stock issue with the Securities and Exchange Commission late in October, so bids on the debentures, would be opened on or about November 18.

Pacific T. & T. plus Bell Telephone Co. of Nevada, a wholly-owned subsidiary furnish local and toll telephone service in 624 exchange areas throughout California, Washington, Oregon, Nevada and northern Idaho.

Columbia Utilities Co. Reorganization Completed

- **Earl R. Dean elected pres.; John W. Kirby named v.p. and gen. mgr.**

EARL R. Dean, president, Oregon Washington Telephone Co., was elected President of Columbia Utilities Company and California-Oregon Telephone Co. at meetings of the Boards of Directors last month.

The reorganization and coordination of United System operations in the Pacific Northwest under Dean's direction also included the election as Directors of the Columbia and California-Oregon companies of Dean, D. O. Hood, E. R. Hood, Alden L. Hart and J. T. Naylor.

J. S. Middleton of Portland, Oregon was elected secretary-treasurer and John W. Kirby of Medford, Oregon was elected vice president and general manager. James M. Kirby was elected assistant treasurer and W. E. Driscoll was elected auditor and assistant secretary.

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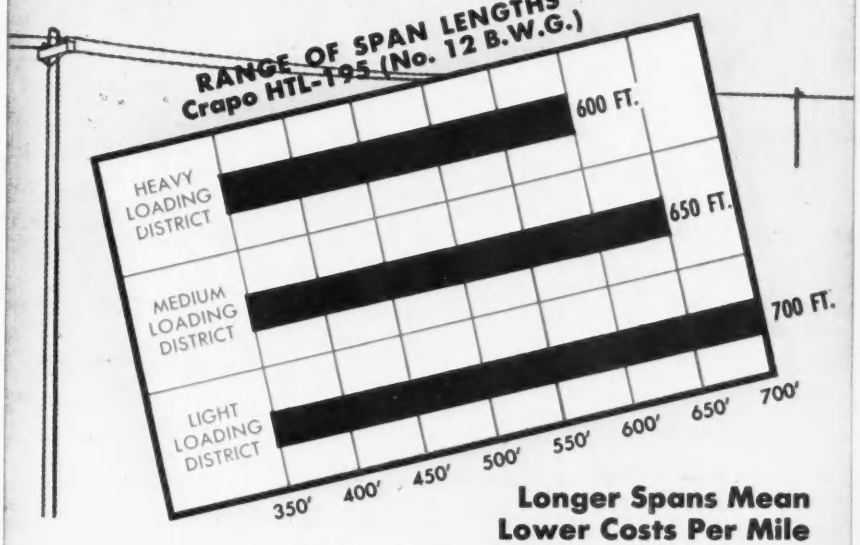
HTL-195

FOR EXTRA LONG SPAN RURAL LINES

The NEW LOWER Resistance Extra-High Tensile Line Wire



Longer Spans Mean Lower Costs Per Mile

You can cut the number of pole structures to a minimum when you use *Crapo* HTL-195 in building rural telephone lines. Extra long span construction, made possible by the high physical strength of this new wire, means marked savings in material and installation costs.

The voice transmission quality of *Crapo* HTL-195 is equal to that of *Crapo* HTL-135 and superior to older grades of ferrous wire.

Pertinent technical data have been prepared to assist engineers in designing and building extra long span lines with *Crapo* HTL-195.

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INDIANA STEEL & WIRE COMPANY, INC.
MUNCIE, INDIANA

"Secret of Cost Reduction"

(Continued from page 60)

sulator, loose ties, or debris on wires should be corrected on the spot. Other conditions like a leaning pole or slipped anchor may require additional help and proper equipment which the man does not have at the moment. In such cases, he should make out a written report to provide a memorandum for his supervisor to assign the work with the necessary number of men. If the condition is such as to be hazardous to the public or to workmen, this fact should also be reported to expedite the corrective work.

A written form should be used for reporting the unsatisfactory condition. If the worker has a pad of the forms in his car, he is more likely to make the report than if he had to use a plain scratch pad for this purpose. A good form as suggested by the R.E.A. in its operating manual is shown in *Figure One*. A suggested size for the report form is 5½" x 8½".

Periodic Inspection of the Plant

ALTHOUGH the periodic inspection procedure will vary with different companies, the important thing is to have a competent man in charge of the inspection. In general, the area or exchange manager, depending on the size of the company, will be the person to qualify for this assignment because of his extensive experience. He will ordinarily need a helper to drive his car while he checks the lead along the right of way. Much of the inspection may be conducted from the car, but on occasion, the inspector should stop and make a closer examination, climbing a pole if required for a better look.

When it is desired to have the local force or a construction crew handle the corrective repairs as required by the size of the job, the inspector notes all defective plant items on a pad of paper, indicating the work to be done and the materials needed. The use of a form similar to the R.E.A. Outside Plant Maintenance Form shown in *Figure Two* will save time and effort.

Conclusion

PROPER supervision is quite important in promoting an effective maintenance program. A good area or exchange manager will properly organize the plant operations to allot the proper amount of time and effort to preventive maintenance. At the same time, he will see that other duties, such as handling telephone installations and moves, processing subscribers' complaints, and other routines will be accomplished with little delay.

The manager will also study complaint records and trouble reports to uncover unsatisfactory plant conditions which may be the result of defective plant items or insufficient attention to maintenance work on the part of the exchange workers.—*Richard Allen.*

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OUTSIDE PLANT MAINTENANCE REPORT

EXCHANGE _____
LINE NO. _____ MAP _____
INSPECTION DATE _____
INSPECTOR _____

POLE NO.	POLES				GUYS					GROUNDS			AERIAL CABLE								AERIAL WIRE PLANT					CONDUCTOR SUPPORTS				CROSS-ARMS			DROP WIRE			PROTECTOR			RW				REMARKS	COMPLETE
													STRAND				LASHING WIRE		TERMINALS			WIRE TYPE			INSULATOR (REPLACE)			BRACKETS			PINS			REPLACE*						REPLACE							
	STRAIGHTEN	CANT	TAMP	REPLACE & SIZE	ADD GUY	TIGHTEN GUY	REPLACE	RELOCATE	INSTALL GUARD	REPAIR	REPLACE	INSTALL (UNIT)	SLACK	CUT	RUSTED	BROKEN	SLACK	CORRODED	LOOSE COVER	REPLACE SUPPORT	REPLACE SPACER	DAMAGED SHEATH	RESAG	RETIE	REPLACE	INSTALL DAMPER	TOLL GRADE	DOUBLE PETTICOAT	TRANSPOSITION	TANDEM (B)	TANDEM (C)	WOOD	WOOD	STEEL - 1/2" SHORT	STEEL - 1/2" LONG	STEEL - 5/8" LONG	2 PIN	6 PIN	10 PIN	DEAD-END	REPLACE	TRIM OUT	RAISE	DRAINAGE	POWER CONTACT	STATION	RECLEAR	RECHECK 19	SIDE TRIM	CUT DANGER TIMBER	IF ADDITIONAL SPACE IS NEEDED USE REVERSE SIDE	

* SPECIFY TYPE A, B, OR T.

FIG. TWO: — Outside Plant Maintenance Report form used by inspector on periodic check of outside plant. — (From "Telephone Operations Manual," Rural Electrification Administration.)

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Kellogg volunteer-fire-call operates through existing facilities

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7—No special servicing

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"When You Move a Pole"

(Continued from page 62)

of the minimum amount of equipment. A series of pole holes about 10 feet apart and about 4 feet deep are dug in a lateral line from the old location to the new location of the line. For a typical pole move illustrated in *Figure Two*, the line is moved about 30 feet back from the road, requiring three holes to be dug for each pole, with the last hole sunk to the required depth for permanently setting the pole. These holes are bored with a pole hole digger in advance of moving the poles.

A construction truck with pole derrick is employed to pull out, move, and reset the poles. Beginning at one end of the line, the first pole is pulled up with the truck

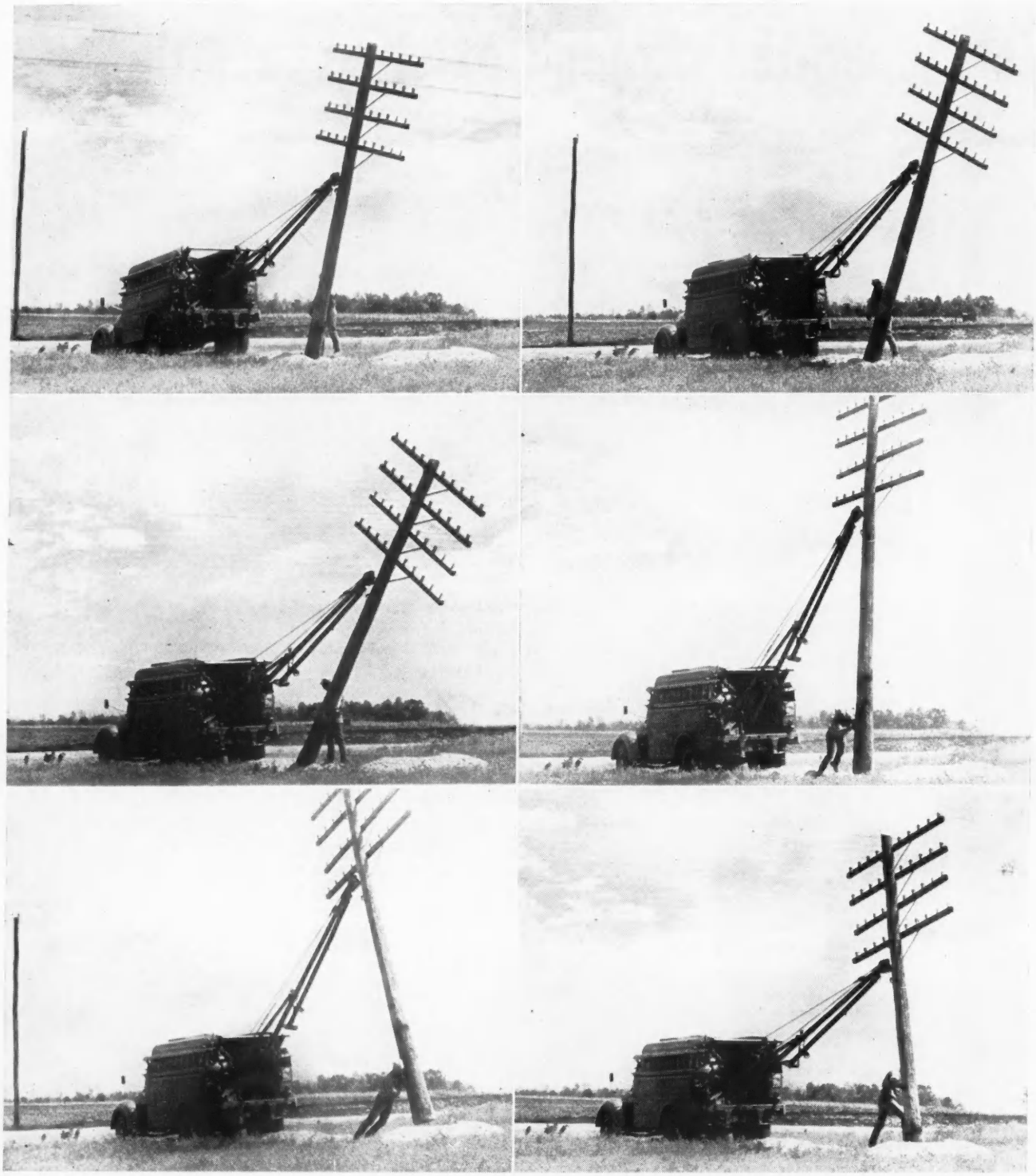

FIG. TWO: — Steps in moving a pole from one temporary hole to another in pole line being moved back from highway in road widening project. Upper left — pushing loosened pole over with truck derrick. Upper right — Lifting pole out of hole with derrick. Center left — Workman grasping butt of pole preparatory to moving it over to the next temporary hole. Center right — Workman guiding pole being shifted. Lower left — Derrick has moved pole as far as it will go and workman is shifting butt into hole. Lower right — Pole is being lowered into the hole. The last step is to pull down and remove the winch line, using a wire raising tool to facilitate this operation.

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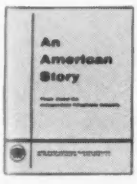

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derrick and winch line until the butt just clears the top of the pole hole. The man assigned to shifting the pole grasps the butt and guides it to the next hole as the truck slowly backs the pole to this hole. The pole is carefully lowered into the hole, and the truck moves on to the next pole after the winch line is disengaged.

After all the poles have been moved to the first series of holes, the truck returns to the first pole moved, and repeats the operation of lifting out the pole and carrying it to the next hole in the next series. The poles are thus moved in ten-foot strides until the permanent location is reached.

In certain situations, as when a junction pole or special pole fixture is involved, it may not be possible to lift the pole or fixture out of the ground without causing damage to the equipment. This problem may be solved by digging trenches towards the new line and dragging the pole or fixture through them, using truck pole derricks to support the poles as the vehicles are slowly driven to the location. See *Figure Three*.

Some companies have been using special equipment to facilitate the moving of poles. In one method, a pole moving beam is employed to hold the butt of the pole rigidly in position, while moving it with the pole derrick and winch. The beam extends from the truck bed and attaches to the pole butt. Such an arrangement may use a number of trucks to move the poles at one time, instead of in steps, as in the foregoing method.

For extensive heavy pole line moves, a company adapted a bull dozer to pull out and carry standing poles one at a time to the new line location. As illustrated in *Figure Four*, the bulldozer had its blade removed from its side rails and extension arms were attached at the top so the pole could be rigidly held in a vertical position by two chain slings, one on the bulldozer bar and the other on the upper extension arms.

For situations where the line wires must be pieced

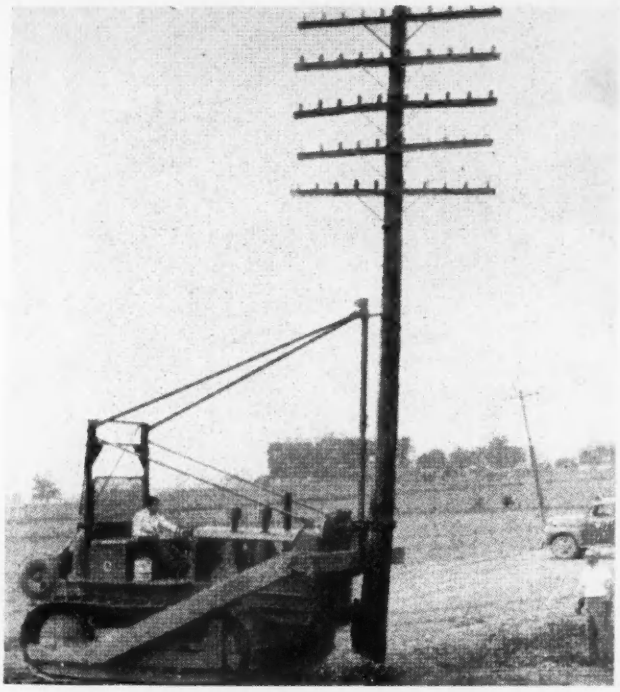


FIG. FOUR: — Use of bulldozer with special rig to lift out and carry a heavy corner pole being moved in road widening project.

out to permit moving the poles, one company has devised auxiliary crossarms with small individual spools for holding surplus wire under each insulator on the regular crossarm. The line wires are spliced to the surplus wire ends. A drum in the center of the auxiliary arm is joined to the shaft on which the individual wire spools are mounted, and a winch line runs down the pole to a snatch block at the ground line, and then to the truck winch. For more than one crossarm as many auxiliary crossarms with wire spools are employed as required for the number of crossarms in the pole. As the poles in the rest of the line are moved, the winch line is slowly payed out, allowing the surplus wire to

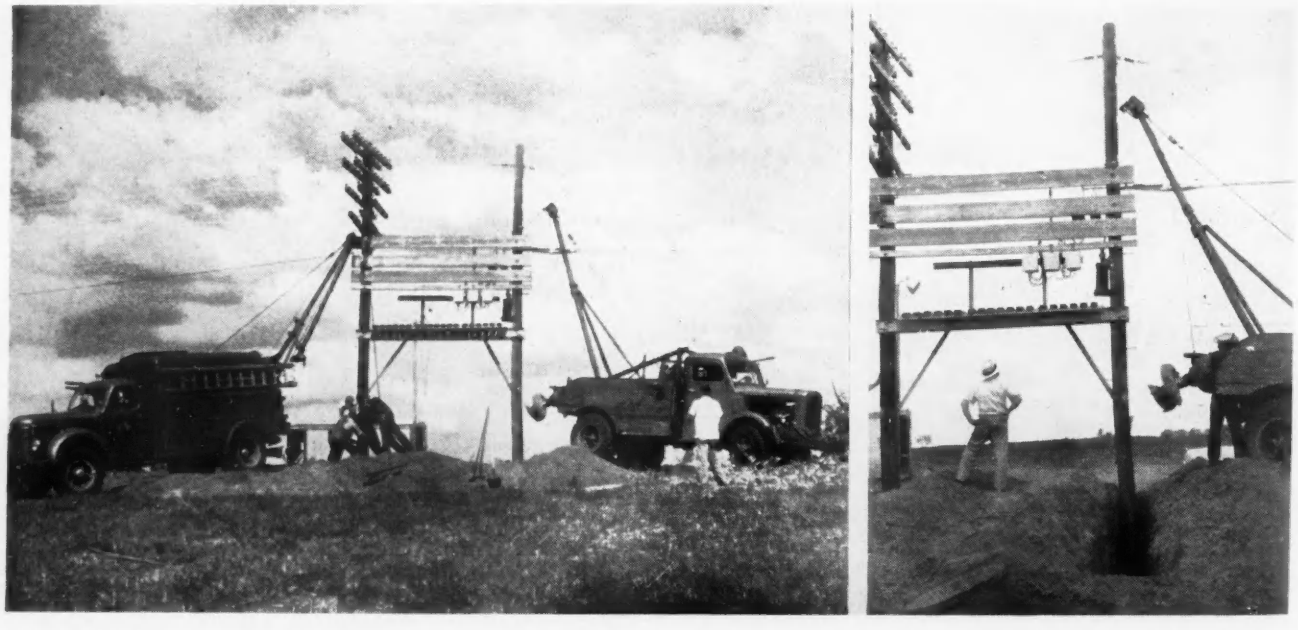
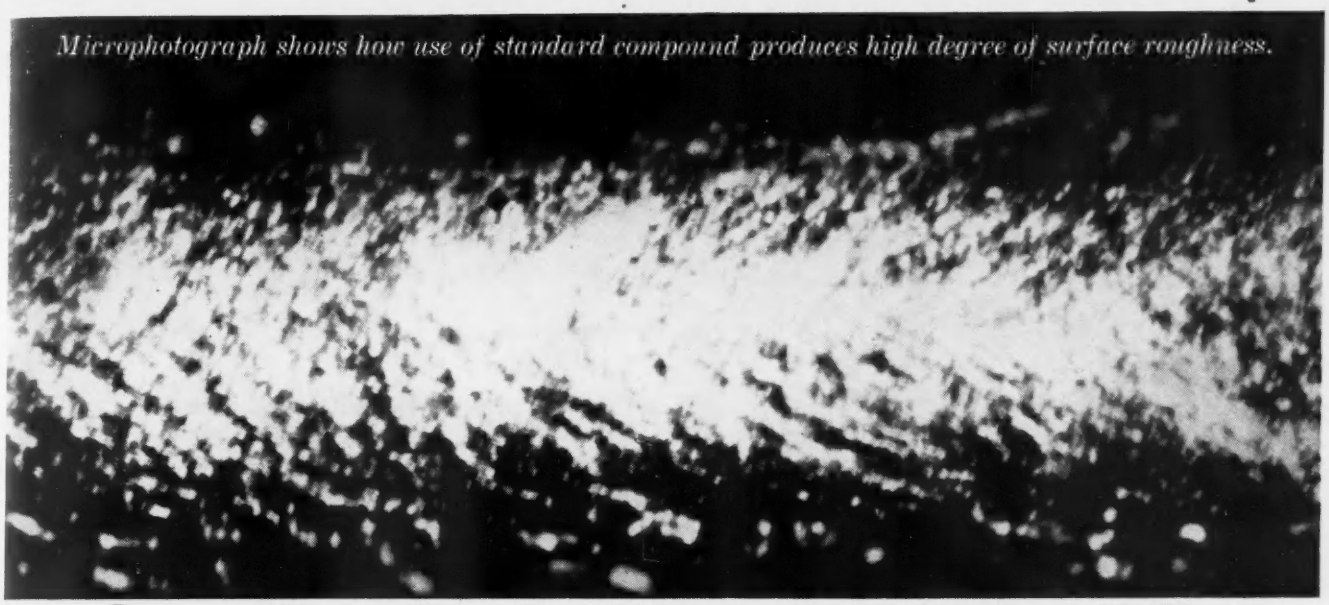


FIG. THREE: — Left — Junction pole fixture being moved. Right — Detail showing trench dug for moving fixture. A paralleling trench was made for the other pole.



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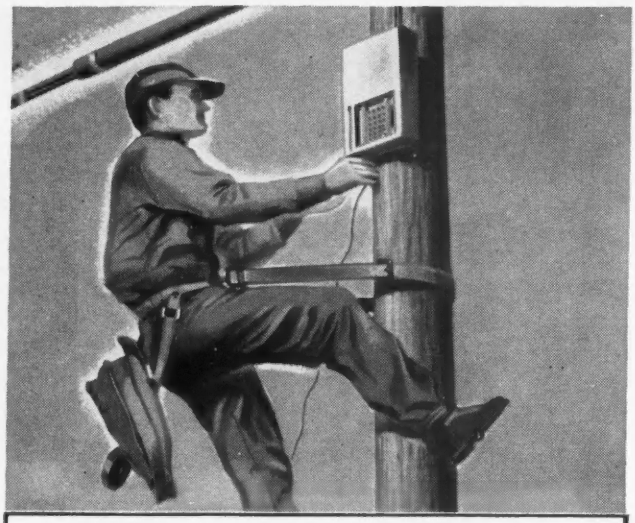

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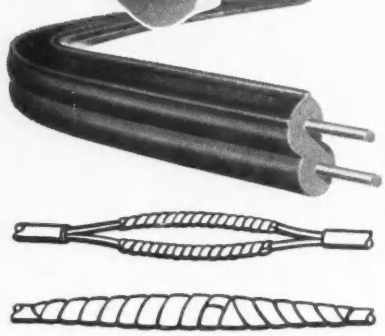

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unreel from the spools. The line wires thus are kept at the proper tension during the pole move.

Where long spans are involved and it is important to prevent the wires from coming together at any time, wooden spreaders may be employed to keep the wires apart. These spreaders can be easily made from suitable lengths of 2″ x 2″ common lumber with snap hooks wired to the stock with pieces of iron tie wire at the proper locations corresponding to the wire spacings.

Conclusion

ECONOMY of labor and investment in special equipment are important factors in determining the method that should be employed in moving pole lines. The average company can successfully handle most pole line moves with standard trucks and construction equipment. The small company usually can rely on a construction contractor to help on the heavier pole line moves when the hiring of the contractor will be less costly than rebuilding the line. — *Myrle Shafer.*

"Regroup Rural Subscribers"

(Continued from page 71)

service later on, it is a good idea to set a maximum of ten and a minimum of six parties to each line. Thus each group would have eight subscribers and two prospects, seven subscribers and three prospects, or six subscribers and four prospects. The ratio of prospects to subscribers in any one group depends on the financial standing and the attitude of the prospects toward taking telephone service at some time in the future. If the prospect is a tenant renting a farm that is unproductive due to poor land or mismanagement and this farm is notorious for its heavy turnover in tenants, he would be considered a very unlikely prospect. On the other hand, if the prospective subscriber is a substantial farmer with a good credit rating in his community, he would be classed as a good prospect. There will, of course, be various classes of prospects in between these extremes. These facts are taken into consideration in determining the ratio of prospects to subscribers in any group.

Starting with the farthest end of the main lead and working back toward the junction of the open wires with the farm cable, the subscribers and prospects are grouped as indicated in the illustration. This grouping should be planned in such a way to avoid unnecessary line construction work, which would add to the cost of the program. It is actually a cut-and-try process with all possible combinations considered in an effort to obtain the most economical grouping of subscribers possible.

From a study of the regrouped stations on the map, the work necessary to carry the program to its conclusion can be planned.

After the program is completed, the original tracing of the rural record map should be revised to reflect

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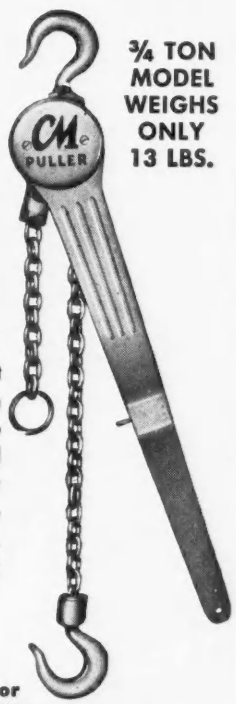

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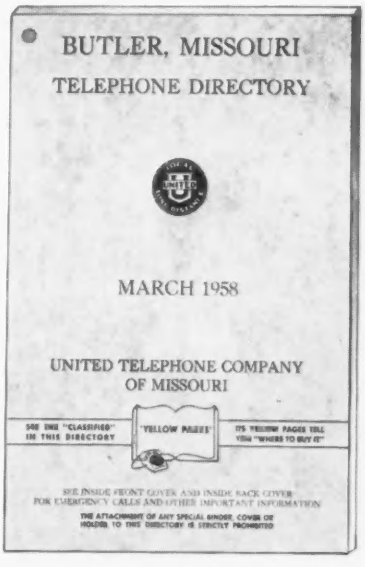

A Directory for the United Telephone Company of Missouri

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the changes that were made, as well as the subscriber record card and cable record.

Conclusion

IN SOME CASES, it will be found rather difficult to regroup the stations because of objections from neighbors or relatives on the same lines to losing their supposedly direct telephone contacts by transfer to another line. This difficulty is greatly minimized when the ringing system on these lines is full selective.

It is pertinent to add one caution in connecting a new rural subscriber to a distant circuit because the nearest available one seems to be full (has eight or nine subscribers). Rather than placing four or five miles of wire line to serve the new customer, it may be well to investigate the possibility that at least one of the present subscribers on this line may be leaving soon and thus save the cost of building a long extension, which the new subscriber might have to pay for.

In locations where population growth is rapid and many lines are heavily loaded, consideration should be given to placing rural or urban distribution wire rather than open wire. When long lines are involved, requiring good transmission, subscriber carrier may well be the answer to this problem. The cost of these facilities should be weighed against the cost of placing taller poles and adding more crossarms and line wires plus the higher maintenance costs resulting from the use of additional open wire material. — *James A. Boyd*

New Work Methods

(Continued from page 64)

for blowers to ventilate manholes; providing power for pumps; in the event of power failure the Impak Power Generator can become an emergency stand-by station, and the portable generator can also operate a great many of the battery chargers found in local telephone exchanges.

The Impak Power Generator is mounted under the hood along side the engine. The belt drive to the unit

Ease of operation is accomplished through use of Impak Power Generator.

To obtain Portable Power on the line, operator pushes button on control panel under dashboard, pulls out panel throttle so control meter is in a "green" zone, unit begins operation, and load may be applied.

is through a clutch, either electric or manual, as desired, which permits disengaging the unit when power is not required. Designed for mounting on all popular makes of trucks, tractors, and cars, these generator units are adapted directly to the engine, and are driven from the crank shaft fan belt assembly.

When power is required, the operator pushes a button on the control panel that is mounted under the dashboard. He then pulls out the panel throttle so that the control meter hand is in a green zone. The unit is now operating, and load may be applied at the operator's discretion.

A mounting kit is available for use in installing the Impak Power Generator. This kit includes the necessary mounting bracket, engine pulley, belt, jack shaft where required, and all necessary fasteners. It is not at all necessary to rework or modify the engine compartment in any way.

Finding A Snag

AT THE Rocketdyne Division of North American Aviation, Canoga Park, Calif.; photographers were recently called on to assist an electrical contractor during installation of control and communication cables running from a secluded rocket test stand installation to a remotely located control center.

While the contractor was pulling a new cable through a concrete conduit almost 1000 feet long, the cable became snagged. Workers were unable to work it loose.

At first it was believed one of the four-foot sections of the 12 inch conduit had caved in. Usually to find such a cave-in would mean that hundreds of feet of expensive installation would have to be uncovered and perhaps destroyed.

To avoid this long and expensive operation, the contractor called on the Photographic Group at the Propul-

Free Literature

D-C Electronic Voltmeter

CEC Bulletin 7009, from Alectra Div., Consolidated Electrodynamics Corp., describes a new, battery-operated, all-transistor d-c voltmeter, developed to measure the low-level potentials inherent in transistor and diode circuitry. Known as the Alectra Model 30A D-C Electronic Voltmeter, it permits d-c measurements in a wide variety of applications ranging from the calibration of simple thermocouples to the testing of complex computers. The new instrument features high input impedance of 2 megohms per volt and eight ranges which permit measurements from 0.05 to 150 volts with accuracy of ±3% full-scale. A chopper-stabilized amplifier is used to achieve maximum stability and low drift.

Self-contained batteries permit operation independent of line power and thus make the new instrument particularly valuable where stability and freedom from line-power fluctuations are important. All-transistor circuitry and printed wiring result in a compact (6 x 8 x 6 inches) and lightweight (10 pounds) instrument.

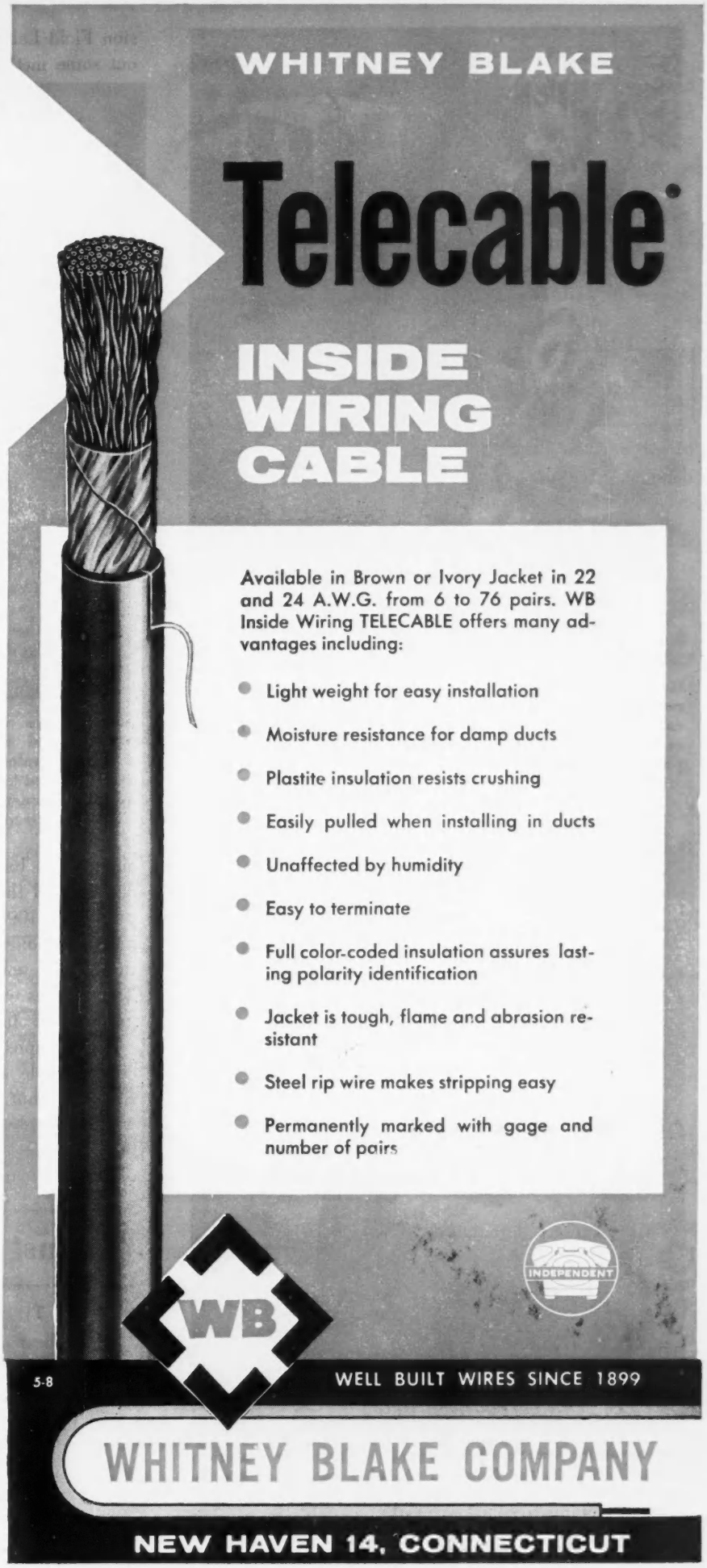
Request Bulletin 7009, from *Alectra Division, Consolidated Electrodynamics Corp., 300 N. Sierra Madre Villa, Dept. TE&M, Pasadena, Calif.*

New Burnell & Co. Catalog

BURNELL & Co's. new catalog #104 stresses importance of toroids, filters and related networks in military and industrial communications. Containing scores of applications with schematics and performance curves, this latest catalog contains 16 pages in color.

Developments in the field of telemetering including a new series of constant delay band pass and low pass filters are also featured.

The catalog #104 may be obtained free by writing to *Burnell & Co., Dept. TE&M, 10 Pelham Parkway, Pelham, New York* or *Burnell & Co., Pacific Division, Dept. TE&M, 720 Mission St., South Pasadena, Calif.*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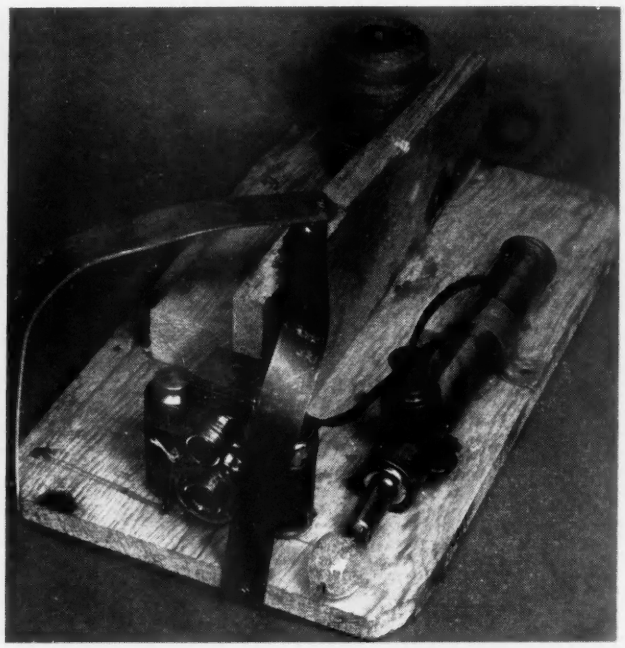
Rocketdyne technical photographer Lee Sengbusch, prepares to insert a motion picture camera sled into the cable conduit for inspection of the interior. The battery case at the upper right provides adequate voltage for the photographic type sealed beam lamp. Batteries for operating the gun type 16mm motion picture camera are contained on the sled.

Photographer Lee Sengbusch, prepares to lower a motion picture sled into the junction chamber so that it can be pushed through the 12 inch cement conduit. In this manner pictures were taken of the conduit's interior so that an obstruction preventing movement of additional cables could be freed.

sion Field Laboratory to see if cameramen could work out some method of photographing the interior of the conduit.

R. J. Keidatz, supervisor of the Photo Lab at Santa Susana and Technical Photographer Lee Sengbusch de-



Still pictures of the obstruction were taken by a 35mm camera and attendant flash unit. A string running through staples was retained by the photographer, and after the sled had been forced to the approximate location of the obstruction, pulling the string tripped the shutter and fired the flash bulb in synchronization.

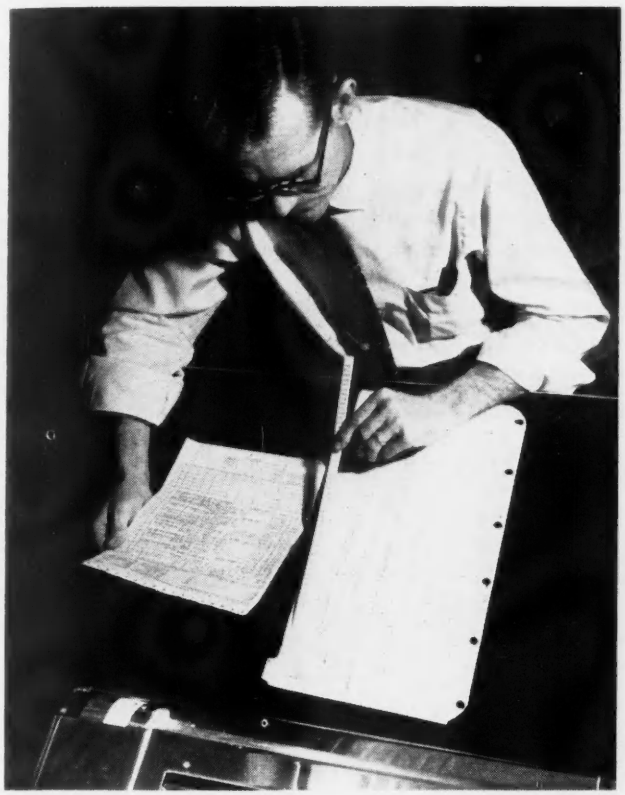
signed and built a "sled" mounting for a 35mm still camera and flash gun. Attached to the sled was a steel push rod 100 feet long The sled and camera were pushed through the conduit and at 10 foot intervals the shutter and flash were tripped by a waxed cord. This process was continued until the camera had photographed 75 lineal feet of conduit interior.

Photographs taken at the 75 foot mark showed the control cable was not obstructed by a cave-in as first suspected, but that the "pull-line" was wound around cables already in the conduit. A movie camera then replaced the still camera to confirm earlier findings of the still camera.

Just a Row of Numbers

CABLE TRANSFER or cut sheets can be made up by means of numbered strips pasted to the old cable record sheet listing the cable pairs involved in the transfer. Other information needed for directing the transfer are entered on a small sheet attached to the cable record sheet at the top. Photo copies are made of the revised sheet to be given to the frame men and cable splicers assigned to the transfer work.

With this complete information, calls to the office on the transfer work are reduced. In the illustration



Old transfer sheet (left) required much hand copying from cable records. New method (right) is real time saver.

are shown the old transfer sheet previously used (left) which required much hand copying from cable records and the new method (right). Time saved by the new procedure amounts to about 2½ hours for every 200 pairs in large cables.

Practice What We Preach

THE VERSATILE answer and recording machine so commonly employed for recording telephone calls has another and very practical use, that of aiding clerks in closing out of service orders reported as completed by installers. The installer no longer has to wait until a clerk is ready to take his report. Instead, he listens for the beep tone which indicates that the machine is ready and then verbally gives his report.

The installer's own time is saved by cutting down the waiting period. The clerks can take down the information from the recording machines in an orderly manner without being hurried by an influx of several installers waiting to make their reports.

Answering and recording machines give clerks complete service order information.

A Driver and a Driller

IT HAS BEEN said that a steel needle can be driven through a coin if the needle is first inserted through a cake of soap to keep it straight. This is the idea be-

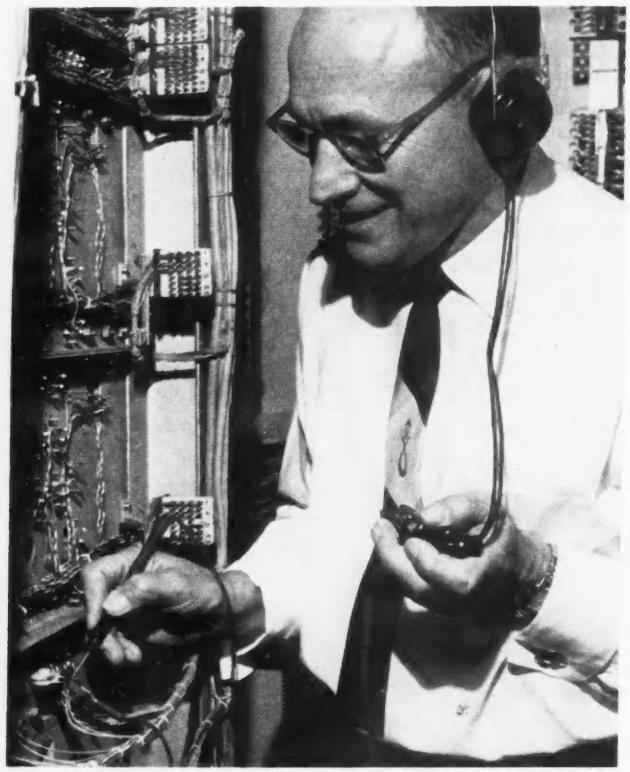
New tool can be used for driving pin-type fasteners or drilling holes into masonry.

hind the stud driver illustrated being used to drive a wire loop fastener into the seam of a concrete block wall.

This tool is actually a combination of hammer drive tool and masonry drill holder so it can be employed for driving pin type fasteners or drilling holes in masonry as required. Besides concrete cinder block and brick, this tool can drive fasteners into steel beams. By its use considerable time can be saved especially when a large number of fasteners must be placed.

Time Saving Tester

THE SIMPLE device illustrated has a small germanium diode which makes carrier currents in the central office equipment audible. Operating the switch one way cuts the diode in for making carrier

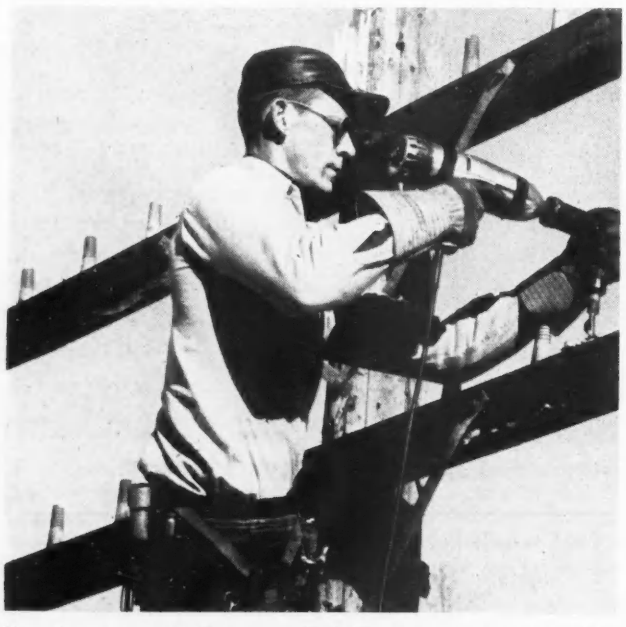


Tester has a small germanium diode which makes carrier currents in C. O. equipment audible.

audible, and operating it the other way, cuts out the diode to make normal telephone currents audible. A simple headphone and probe complete the assembly. This test unit saves time and effort in testing on the carrier apparatus and wiring.

Goodby To A Boring Job

PLANT MEN anywhere will tell you what a tough job it is to bore holes for pole steps, attachment bolts, and the like with a brace and bit. However, a power drill may hit a knot and twist, perhaps throwing the man off the pole. The answer is to use an impact type tool which "hammers" the drill through a knot without twisting. The impact tool can also be used to tighten nuts on bolts or to loosen stubborn nuts by its hammering action. Moreover, this versatile device can be equipped with an angle attachment to bore holes around corners as illustrated in the case of the lineman boring a hole for a crossarm pin.



New impact tool "hammers" drill through a knot without twisting.

Power-driven tools, of course, require a portable generator on the construction truck. Nevertheless, they pay for this added cost by saving time and labor as indicated below, and make the work go easier and faster.

	Time Required by: Manual Operation	Use of Power Tool
Boring one hole	90 seconds	20 seconds
Stepping Pole	30 minutes	10 minutes
Tightening bolt nut	45 seconds	30 seconds
Driving screw	6 seconds	2 seconds

Helpful Reading For You

THE STEADILY mounting importance of the maintenance function in the nation's manufacturing industries during the past decade is made evident in "*Techniques of Plant Maintenance and Engineering* — 1958," published by Clapp & Poliak, Inc. The 9th volume in a series, it reports the proceedings of the Plant Maintenance & Engineering Conference held in Chicago last January.

Included are texts of 35 papers, texts of some 450 questions and answers, an equal number of questions answered in the summary of nine roundtable discussions, 42 charts, tables and illustrations. Bound in cloth on board, with 211 pages, each 8½ x 11″ the volume is available from *Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y., for* $10, *postpaid.*

Bulletin on SATT

AUTOMATIC Electric technical bulletin number 495, *Strowger Automatic Toll Ticketing System—Type BD,* has been released to users of Type BD SATT Systems and those who have BD Systems on order. The 114-page bulletin carries complete descriptions and is supplemented with illustrations and drawings. Additional copies of the bulletin may be obtained by writing to *Ad Dept., Automatic Electric Sales Corp., Dept. TE&M, Northlake, Ill.*

New Technical Bulletin

AUTOMATIC Electric Company has released a new 24-page, 8½″ x 11″ technical bulletin on its type 11 and type 20 M-A-X equipment. The bulletin, number 306, contains a general description of M-A-X dial telephone equipment and is fully illustrated. Copies may be obtained by writing to *Ad Dept., Automatic Electric Sales Corp., Dept. TE&M, Northlake, Ill.*

industry NEWS briefs

James S. Day Elected Director, Tidewater Tel.

JAMES S. DAY of Warsaw, Va., has been elected a director of the Tidewater Telephone Co. to fill the board vacancy created by the death of Rodney M. Coggin, company president.

The new director joined Tidewater Telephone Co., in 1955 as chief engineer. In 1956, he became operating vice president, a post he still holds. Day was with Carolina Telephone & Telegraph Co. for 20 years before joining Tidewater.

W. A. Brown Retires From General of Fla.

WALTER A. BROWN, secretary and treasurer of General Telephone Co. of Florida, Tampa, has retired from active association with the telephone industry following 33 years of service to the company.

Prior to his joining Florida General in 1925 (then Peninsular Telephone Co.) he worked for the Central Home organization which operated telephone exchanges throughout Kentucky and was later purchased by Southern Bell. While with Central Home, he was employed as a traveling auditor and later became general auditor.

Brown was born in New Albany, Ind., graduated from New Albany High School, and later attended business college there.

His first job was with the National Bank of Kentucky. Later, he worked in bookkeeping and accounting capacities with several wholesale firms and became associated with the national firm of Peaslee-Gaulbert Company in Louisville.

After leaving Peaslee-Gaulbert he

W. A. BROWN

joined the Central Home organization and from there moved to Florida to join Peninsular Telephone Company.

His first position with Peninsular was as assistant general auditor. He became progressively general auditor, treasurer and general auditor, and following the change of name to General Telephone Co. of Florida, secretary and treasurer.

Among his other business interests are posts as member of the board of directors of the Florida Telephone Association, and the accounting committee of the United States Independent Telephone Association.

Maintaining long and active interest in telephone people and their work, he is a member of the W. G. Brorein Council, David Laird chapter of the Telephone Pioneers of America, and of the Independent Telephone Pioneer Association.

He is also a member of the Masonic Lodge.

Brown received a W. G. Brorein Council life membership certificate at a pioneer dinner at Tampa, Florida June 28.

Swearing-in Ceremony For Deputy Chief Signal Officer

BRIGADIER General Ralph T. Nelson has been sworn in as the Army's Deputy Chief Signal Officer during a brief ceremony in the Pentagon. He will succeed Major General Emil Lenzner.

General Nelson attended Purdue University and was graduated from the United States Military Academy in 1928, when he was commissioned a second lieutenant in the Infantry. Subsequent to assignments with Infantry in the U. S. and Hawaii, he attended the Infantry School and was graduated in 1934. He was with the 19th Infantry Regiment in 1941, when he returned to the U. S. and was later detailed to duty with the Army Signal Corps.

Nelson, who has been awarded the Legion of Merit, the Bronze Star Medal, the Purple Heart and the Korean ULCHI with Silver Star, has served in the United States Army more than 30 years. He brings a broad background and extensive experience with him in coming to his new assignment.

Miles Morgan Joins Fowler (Ia.) Tel. Co.

MILES MORGAN, manager of the Griswold (Ia.) Co-Operative Telephone Co. since the installation of the dial system in 1953, resigned last month to accept a similar position with the Fowler Telephone Company, Pella, Ia.

Jack Hiley, manager of the Western Light & Telephone Co. exchange

at Oakland, has resigned to become manager of the Griswold company. He had been manager at Oakland for 2½ years and prior to that he managed the Carson-Treynor Tel. Co.

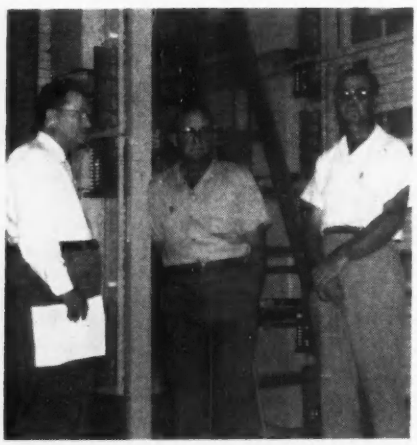
Alabama Telephone Co. Completes Fayette Cutover

THE expanding Alabama Telephone Co. recently took another step forward when it completed dial cut-

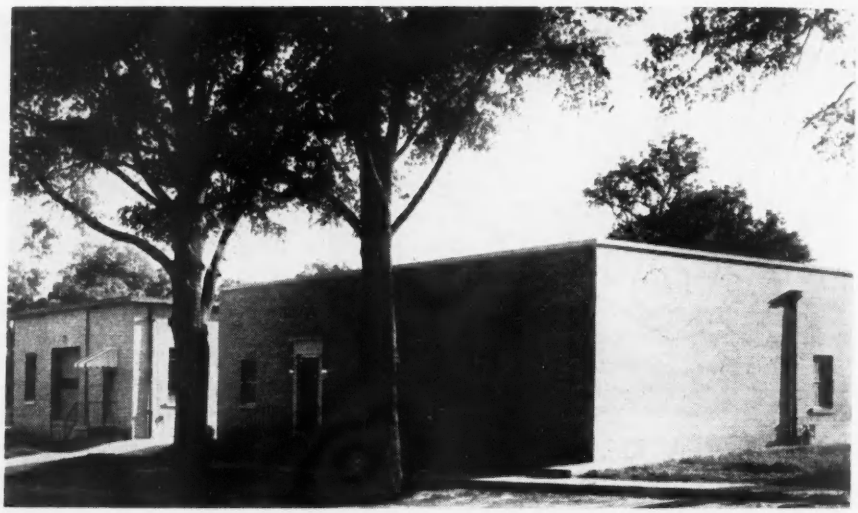
W. J. HOLLADAY, general manager, Alabama Telephone Co., Fayette.

overs at four Alabama exchanges — Fayette, Aliceville, Carrollton, and Reform.

Prior to the four recent cutovers,



Alabama Telephone Co. officials at recent cutover of Fayette exchange. Left to right: W. J. HOLLADAY, general manager; GLENN TREADWELL, assistant general manager, and W. SAM JOHNSON, plant superintendent.



Front entrance of Alabama Telephone Company's new headquarters office building and warehouse building at Fayette.

Alabama Telephone Co. had completely rebuilt the following towns: Berry, Guin, Gordo, Haleyville, Vernon and Sulligent. Construction is underway at Winfield and Hamilton.

Officers of Alabama Telephone Co. are H. W. Vaughan, president and purchasing agent; Earl McDonald, executive vice president; W. B. Cox, secretary and treasurer; W. J. Holladay, general manager; Glenn Treadwell, assistant general manager, and W. Sam Johnson, plant superintendent.

Organizational Changes Announced by General Tel.

TWO ORGANIZATIONAL changes within General Telephone System were announced in New York City last month by General's President, Donald C. Power.

Leonard W. Snodgrass, assistant controller of General Telephone Co. of Ohio, became controller of General Telephone Co. of Kentucky on August 16.

Snodgrass started his telephone career in 1936 in the accounting department with a predecessor to the General Telephone Co. of Iowa, and subsequently, transferred to Ohio in 1939. Prior to accepting his present position in Marion, he was in charge of all accounting operations for the Ohio Consolidated Telephone Co., Portsmouth.

In the other organizational change, Theodore S. Lauver became secretary and treasurer of General Telephone Co. of Ohio, effective August 16. He was assistant to the controller of the General Telephone Co. of Kentucky, Lexington.

Lauver's telephone career started in 1940 with a predecessor company to the Ohio Consolidated Telephone Co. Since 1942, he has had various assignments in all phases of telephone accounting in Illinois, Tennessee, and Kentucky.

Incident with these personnel changes, Clare E. Williams, president of the General Telephone Co. of Ohio, announced three promotions within the company.

Robert H. Henderson was elected to the position of vice president —

Alabama Telephone Company's construction crew and trucks are stationed at company's Fayette office.

revenue requirements. Henderson has held the position of controller of General Telephone Co. of Ohio since 1951. He began his telephone career in February, 1950, as assistant controller for General Telephone Co. of Pennsylvania. In the previous five years, he was associated with Arthur Andersen & Co.

Herbert J. Vrooman will succeed Henderson as controller for the company. Since 1951, Vrooman held the position of secretary and treasurer of General of Ohio. He began his career in 1929 in the accounting department of a predecessor company to General Telephone of Upstate New York. Three years later, he assumed charge of the entire accounting operation for that company. Vrooman transferred, in 1935, to Spokane, Wash., as secretary and treasurer of General Telephone Co. of the Northwest.

Joseph G. Schroeck, presently General Accounting Supervisor, was promoted to assistant controller succeeding Mr. Snodgrass. In 1948, Schroeck was employed in the Accounting Department of General Telephone Co. of Pennsylvania, Erie. He accepted a position in the accounting department of General of Ohio in 1951.

General of Ia. Advances Barnes to New Post

D. A. BARNES, formerly controller of the General Telephone Companies of Iowa, Missouri and Nebraska has been elected to the newly created position of vice president-revenue requirements. Prior to his new assignment, Barnes has held positions dating back to 1927 in the fields of accounting and administration, financial, corporate and rate case work. In 1956, after several years in Chicago, he became secretary-treasurer of General Telephone Co. of Iowa and later was appointed controller.

J. H. DeLong has succeeded Barnes as controller. DeLong, who was assistant controller, began his telephone career in 1949 as a bookkeeper at Springfield, Ill. for the Illinois Commercial Telephone Co. In 1952, he was promoted to traveling auditor for the General Telephone Co. of Ill., a position he held until 1957, at which

IMPROVED DESIGN!

Extended mounting slot now fits ALL standard 12" or 8" pin spacings . . . eliminates costly re-boring.

Case® ALUMINUM CROSS-ARM TRANSPOSITION BRACKETS.

Many new carrier circuit designs call for a reduction in wire spacing from 12" to 8". Normally this means thousands of new pin holes must be bored . . . an expensive and time-consuming job. Now . . . the new, improved Case cross-arm transposition bracket with the extended mounting slot fits **all** standard 12" or 8" pin spacings . . . eliminates the need for costly re-boring, and saves you thousands of dollars per year. If you are planning to re-space and transpose wires from 12" to 8" spacings, be sure to check first with Case.

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CASE BRACKETS . . . STRONG, LONG-LASTING, ECONOMICAL, ESPECIALLY ADAPTED FOR CARRIER-CIRCUIT CONSTRUCTION

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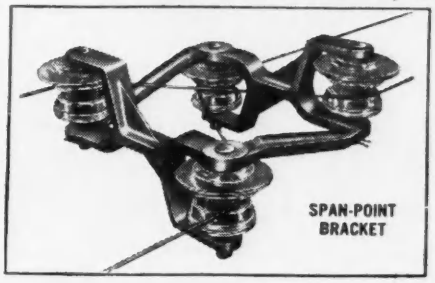
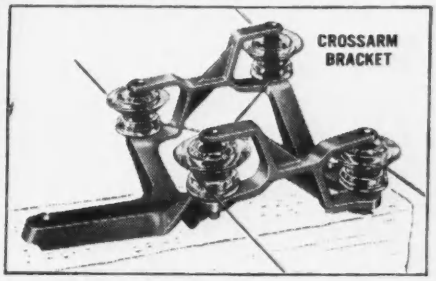




Copperweld "talks better"

than any other

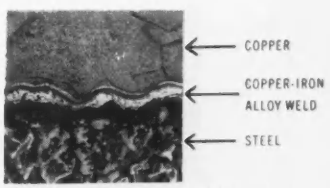
high-strength conductor!

Copperweld Line Wire keeps your subscribers phoning instead of moaning, often boosts toll revenue. Its molten-welded copper covering insures circuits that "speak up"—even on your longest lines.

Non-rusting Copperweld is right for carrier service, too, because its transmission characteristics are almost identical with those of solid copper. In the higher frequencies, they're *better!* Operating at 150 kc's, for instance, the attenuation of solid copper, 104 mil., is .317 db per mile. Attenuation of Copperweld, 104 mil., under the same conditions is .293 db per mile.

Because you can string longer spans on fewer poles, Copperweld reduces construction costs. Copperweld's lasting strength endures even under heavy wind and ice loading. It will keep your maintenance costs down.

You'll find a complete line of economical Copperweld products in Automatic's supply catalog. For quick delivery and helpful service, call your friendly Automatic Electric representative or your nearest A. E. Sales Corporation warehouse.



This photomicrograph of the molten weld shows how the grains of copper and steel interlock to form a permanent, continuous weld.

Automatic's 5 friendly warehouses:

Northlake, Illinois FIllmore 5-7111	2915 Moore St. Richmond 21, Va. ELgin 8-9280	2360 N. W. Quimby St. Portland 10, Ore. CApital 3-7244	158 Corliss Avenue Johnson City, N. Y. Binghamton 7-8507	2021 Main St. Kansas City 8, Mo. HArrison 1-4720

AUTOMATIC ELECTRIC

Subsidiary of **GENERAL TELEPHONE**

time he was transferred to the General Telephone Companies of Iowa, Missouri and Nebraska as assistant controller.

H. C. Ryon Rejoins North Electric Co.

WILLIAM TUCKER, chairman of the board and president of North Electric Co., Galion, Ohio, has announced several executive appointments as part of North Electric's reorganization program to strengthen the competitive position of the company.

H. C. Ryon was elected by the board of directors to the position of vice president in charge of the telephone division, effective September 2.

Ryon resigned as sales promotion mgr. of Automatic Electric, Northlake, Ill., the main manufacturing subsidiary of General Telephone Co., to head up the reorganized and expanded telephone division of the 75-year-old North Electric organization.

He was associated with North Electric from 1931 to 1952, the last 10 years of which he served as sales manager. Joining Automatic Electric in January 1952, as staff engineer, he was appointed one year later to the position of sales promotion manager, a title held until his resignation. In this capacity, he was responsible for coordinating the sales promotional efforts of the entire Automatic Electric organization, as well as setting up a new Marketing Research Division.

In announcing the appointment, President Tucker asserted that "the addition of Mr. Ryon to our top management team is another step toward strengthening the executive group that will keep North in the position of pre-eminence it has enjoyed since 1884."

E. W. Gray, telephone division manager, has been promoted to administrative officer of the company and is responsible for many of the duties formerly performed by H. Y. Kraepelien, recently resigned from the office of president of the company.

At the same time, Tucker announced the appointment of Rear Admiral Fritz Gleim, USN (Ret.), to the position of assistant to the president. A graduate of the United States Naval Academy at Annapolis, Admiral Gleim completed Electronic Engineering studies for his Masters Degree at the University of California at Berkeley.

Admiral Gleim's long association with Naval Communications culminated in a tour of duty as Commanding Officer of the Naval Communications Station, Norfolk, Va., and Fifth Naval District Communications Officer. He also served in the office of the Secretary of Defense as a senior member of a Board of Review working with American Industry. He retired from the Navy as Chief of Staff of the Fifth Naval District.

The appointment of Ralph B. Nottingham as director of quality control was also announced by the North Electric chairman. Nottingham is a graduate of Wayne University, where he earned both his Bachelors and Masters Degrees. He was retained as an instructor at Wayne University upon completion of his studies. Additional work for his Ph. D. was continued at Columbia University.

In 1945, after three years as an Ordnance Engineer, Naval Ordnance Laboratory, Washington, D. C., Nottingham joined the Brush Development Co., Cleveland, Ohio. Successively important positions were held with this firm, including manager, special products department; manager of customer service department; and training director.

In 1952, Nottingham was appoint-

PERRY ROEHM, director of marketing at International Tel. & Tel. Corp., presents A. B. LANGSTON, representative of Kellogg Switchboard & Supply Co. with 30 year service pin. Langston received the pin from Roehm during Kellogg's recent sales convention.

H. C. RYON, vice pres. in charge of North Electric's telephone division.

Rear Admiral FRITZ GLEIM (USN, Ret.) has joined North Electric Co., Galion, Ohio.

North Electric has named RALPH B. NOTTINGHAM, dir. of quality control.

30 Day Free Trial Offer!

The All New Terminating Board Model TBZ

for use with the Murphy Cable Tester

We'll gladly send one TBZ Terminating Board to each division or area for a 30 day free trial. No obligation! If you don't see that the fabulous TBZ will *save you money, save hours of time, is simpler to use,* and *has a wider variety of uses,* send it back in 30 days and there will be no charge.

TBZ's simplified construction uses only ten standard binding posts instead of 20 special ones . . . ten slots instead of 101 holes as in standard tag-boards. No holes to thread wires through. Lay them speedily in ten clearly numbered slots.

Only $25 each. Greater savings when ordered in quantities. Write for additional information on the TBZ as well as a complete brochure of all Murphy products for the telephone industry.

MURPHY
ELECTRONIC RESEARCH DEVELOPMENT MANUFACTURE
ENGINEERING LABORATORIES, Inc.

4419 Tulsa **Houston 24, Texas**

Say mister, is this pole gonna be here from now on?

Maybe not from now on, but it will last for years and years. That is unless it's struck by lightning or something. This is a T-C pressure treated pole. T-C's pressure teatment makes 'em last. Our company uses T-C poles all the time. We found they last . . . almost from now on.

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ed manager, quality control department, Brush Electronics Division, Clevite Corp. Since that time until his resignation, he has held an executive position with the Cleveland firm.

Liepold Named Vice Pres. Automatic Electric Sales

ROBERT B. LIEPOLD, who has been assistant to President D. H. Deaver of Automatic Electric Sales Corp., has been elected vice president — industrial products, of the domestic sales and distribution affiliate of Automatic Electric Co.

An electrical engineering graduate of the University of Wisconsin, Liepold saw duty with the United States

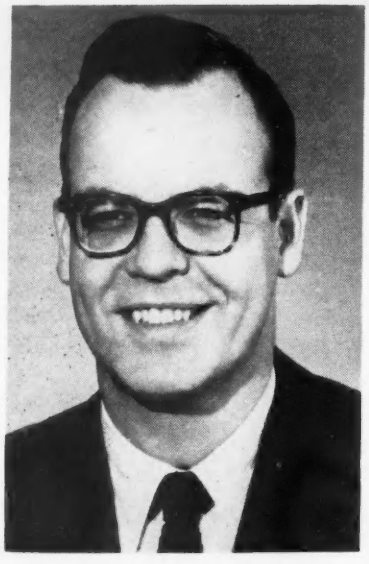
ROBERT B. LIEPOLD

Navy in World War II, then joined Automatic Electric in 1947. He served with the installation and pricing departments, and as staff engineer in the Washington, D. C. offices of the company until 1952 when he was recalled by the Navy for duty aboard an aircraft carrier in the Korean action. In 1954 he returned to Automatic Electric where he became manager of the East Central Sales District. He was appointed Mr. Deaver's assistant in 1955.

Jones & Swift Named In Motorola Sales Moves

HAROLD A. Jones has been appointed vice president and eastern manager for Motorola Communications & Electronics, Inc., a wholly owned sales and service subsidiary of Motorola, Inc.

Jones had been the vice president



HAROLD A. JONES

in charge of the midwestern area.

He replaces Lowell E. White who will be working on special assignments for Arthur L. Reese, vice president and general manager of the sales organization.

In making known these changes, Reese also announced the election of Robert N. Swift to vice president and midwestern area manager to succeed Jones as midwestern manager. Swift had been sales manager, special markets in the midwestern area.

Jones has been with Motorola for 12 years. He will now be in charge of the 15 state Eastern seaboard area, extending from Maine to South Carolina, and including West Virginia. While with Motorola, he has held positions in development and systems engineering, advertising and

ROBERT N. SWIFT

sales promotion, and sales-engineering management.

Swift joined Motorola in 1952. He has held various positions in sales, system design and sales-engineering administration. As midwestern manager, Swift will be in charge of the area bounded by and including North Dakota, Kansas, Kentucky, Ohio and Michigan. He will work from the Motorola Midwestern Area sales office in Chicago. Jones will make his offices in Ridgefield, N. J.

J. F. Cairnes Elected To Kilburg Board

JOSEPH F. Cairnes, president of the Milwaukee Braves baseball team, has been elected to the board of directors of the James Kilburg Corp. of San Mateo, manufacturers of Dialaphone, automatic telephone dialing device.

Cairnes is the first new director to the board since Kilburg Corp. began

JOSEPH F. CAIRNES

its expansion program early this year. There are presently eight members on the board.

Cairnes, 51, joined the Braves in 1947 as business director of the club's minor league operations and was appointed executive vice president in 1952. He was named to his present position in January, 1957. The youngest of 13 children, Cairnes worked for his father, while studying engineering at night at the Massachusetts Institute of Technology. In 1934 he became office engineer for the Federal Works Agency. When he left

the agency he was regional engineer for the New York, Pennsylvania and the New England states.

He then joined the Thompson Lichtner Co. of Boston as principal engineer, in which he made preliminary studies of air traffic and revenue for a new Boston airport. This study, later used in the development of other airports, came to the attention of Massachusetts Governor Maurice J. Tobin.

Stromberg-Carlson Appoints Field as Dir. of Marketing

HAROLD P. Field has been appointed Director of Marketing of the Electronics Division of Stromberg-Carlson. Field has been general manager of Stromberg-Carlson's plants in San Diego, Calif., since 1956. He will continue in that capacity.

A native of Rochester, Field joined Stromberg-Carlson's Research Depart-

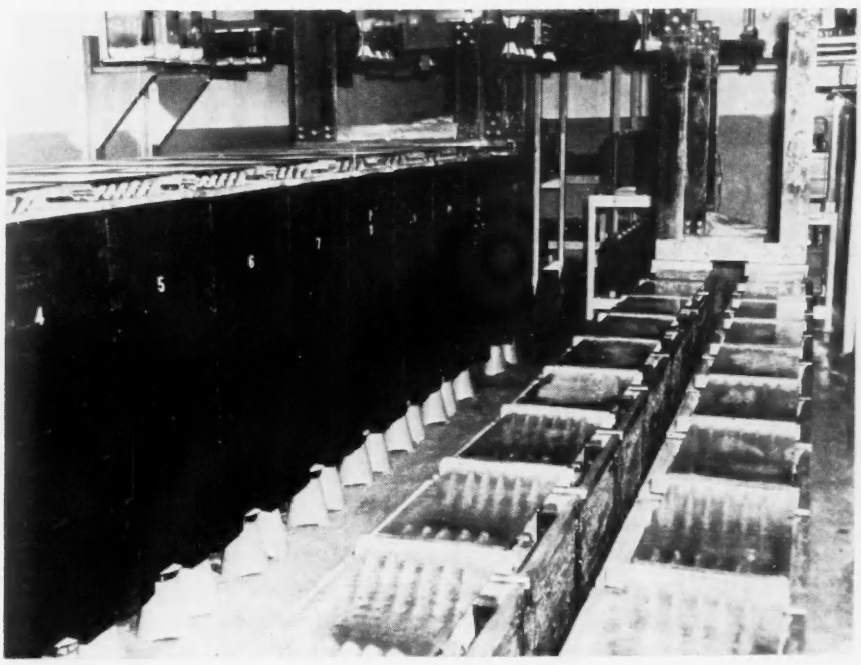
HAROLD P. FIELD

ment in 1947 where he worked on microwave communications. In 1949 he moved to the test equipment engineering section of the company's Television Division. Two years later he became assistant manager of Production Engineering of that division, and in 1953 was appointed manager of Test Equipment Engineering. He held that position until his transfer to the San Diego position.

Prior to joining Stromberg-Carlson, and during World War II, Field served as a research associate at the Woods Hole Oceanographic Institution, developing electronic equipment.

R. A. Clark, Jr., president of Communication Equipment & Engineering Company, has announced that K. C. GILLETTE has been appointed sales manager for the telephone division of the company. He will be responsible for all matters pertaining to products manufactured for the telephone industry. Mr. Gillette has been associated with the Independent telephone industry for about 25 years. His former association was with Ansonia Wire & Cable Company as cable specialist.

ROBERT A. BAILEY has been appointed as director of marketing for the Industrial Products Division of International Telephone & Telegraph Corp., San Fernando, Calif. Bailey joins ITT from Norden-Ketay Corp. where he was marketing manager for its Data Systems Division and its Western Division. Before that he was vice-president of Engineered Electronics Co., and product line sales manager and data systems engineer for Beckman Instruments, Inc.



RECORD HOLDER? — Still operating after more than 31 years, this huge Exide tank-type battery (along wall at left) is one of the oldest electric storage batteries being used in this country today. Supplying power to boost long-distance telephone messages at Fredericksburg, Va., Repeater Station of the Long Lines Department, American Tel. & Tel. Co., the battery also eventually might set an all-time national record for long battery life. Engineers of Exide Industrial Division of The Electric Storage Battery Co., the manufacturer, believe that the lead-acid battery can give five more years of service. The old battery, an 11-G-11 Exide Manchester-Box Plante model, is connected in parallel to a similar 11-H-23 Exide battery (shown extending from center foreground) which has been in service almost 28 years. The 11-G-11 was installed on April 4, 1927; the 11-H-23 on July 14, 1930. With a total charged capacity of 5,120 ampere-hours the batteries are maintained by a constant floating-charge system.

A Lorain Telephone construction crew checks over the day's assignment. Not only new construction and maintenance, but work designed to improve existing service is kept on schedule because the Lorain Telephone Company constantly plans ahead.

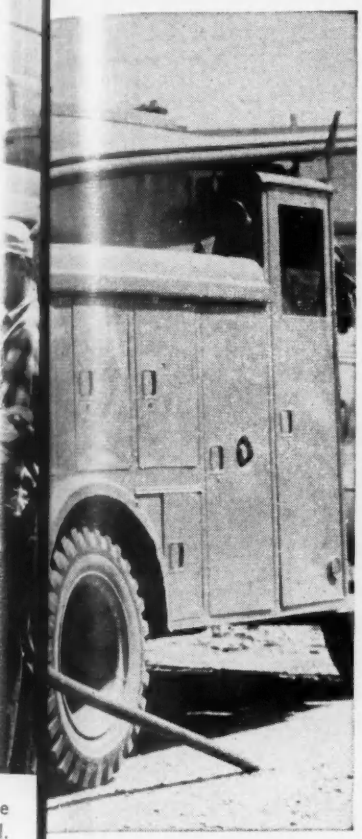
How Lorain Telephone grows through forecasts of community expansion

Early planning and accurate timing have enabled this progressive independent telephone company to anticipate growth in the Lorain, Ohio, area.

In January, 1940, the Lorain Telephone Company of Lorain, Ohio, had 9,229 subscribers. Today the company has over 37,000. This substantial and steady growth has been well deserved, for it has been based on a sound plan. Lorain Telephone Company executives project the coming needs of their territory and base their plans for inside and outside plant expansion on intimate knowledge of residential, commercial and industrial growth.

Lorain Telephone men watch the plans of industry to locate large and small plants in their territory. Long experience in the community helps these telephone experts to chart the growth of residential developments and service businesses which inevitably follow the opening of new plants. By the time the need arises for additional telephone service, the required equipment is already on order and construction work scheduled.

Caught by the camera at the storeroom of the Outside Plant Department are M. A. (Bud) Fout, (center) Superintendent of Material and Supplies for Lorain, George Ostrander, (left) Graybar Telephone Specialist; and R. H. Vollmer, (right) Graybar Sales Representative. These frequent huddles help keep Lorain inventory in balance.



President Herman E. Hageman, pictured here with his son, James C. Hageman, Vice President, earned his B.S. degree at Ohio Wesleyan in 1903. President Hageman has been in telephone work continuously since his graduation. He has found time, in addition, for distinguished work with the Defense Communications Board and to serve the Ohio Independent Telephone Association as president for 3 years. Recently Mr. James Hageman received for the Company one of the annual Community Service Award Plaques presented by the O.I.T.A.

"We like to do business with Graybar because we get what we need and we get it on time. We know that Graybar, like ourselves, anticipates the needs of customers . . ."

Says James C. Hageman, Vice President of Lorain Telephone Company

Typical of the special installations Lorain makes for its customers is the USI Type 30-B PABX supplied by Graybar and installed at the Lorain Banking Company's main office. Shown here are Adele Zlotnicki at the attendant's cabinet; Gerald West, Lorain Telephone Company Service Engineer (right); and Robert Vollmer, Graybar Sales Representative (center).

Fred Gerber, superintendent of outside plant for Lorain, adds that delivery promises made by Graybar can be depended upon. Also, Mr. Gerber looks to George Ostrander, Graybar Telephone Specialist, for up-to-the-minute product information.

"The construction schedules of our company have been, and are being met," says Mr. Gerber, "in large measure by the fine cooperation we receive from outstanding suppliers, like Graybar."

We at Graybar are proud of our long association with Lorain Telephone Company, one of the many fast growing firms in the vital field of independent telephony. Graybar, too, is an independent company . . . wholly owned and managed by its operating and retired personnel. You get *personal* service from people who have a *personal* interest in giving you the assistance you need . . . when you need it.

Through more than 130 Graybar offices and warehouses, we are serving the independent telephone companies of this country with pole line supplies, central office equipment, subscriber carrier and toll circuit carrier, linemen's tools and safety equipment, poles, conduit and booths — besides providing fast, convenient service on over 100,000 electrical items. For anything and everything electrical, call Graybar *first*.

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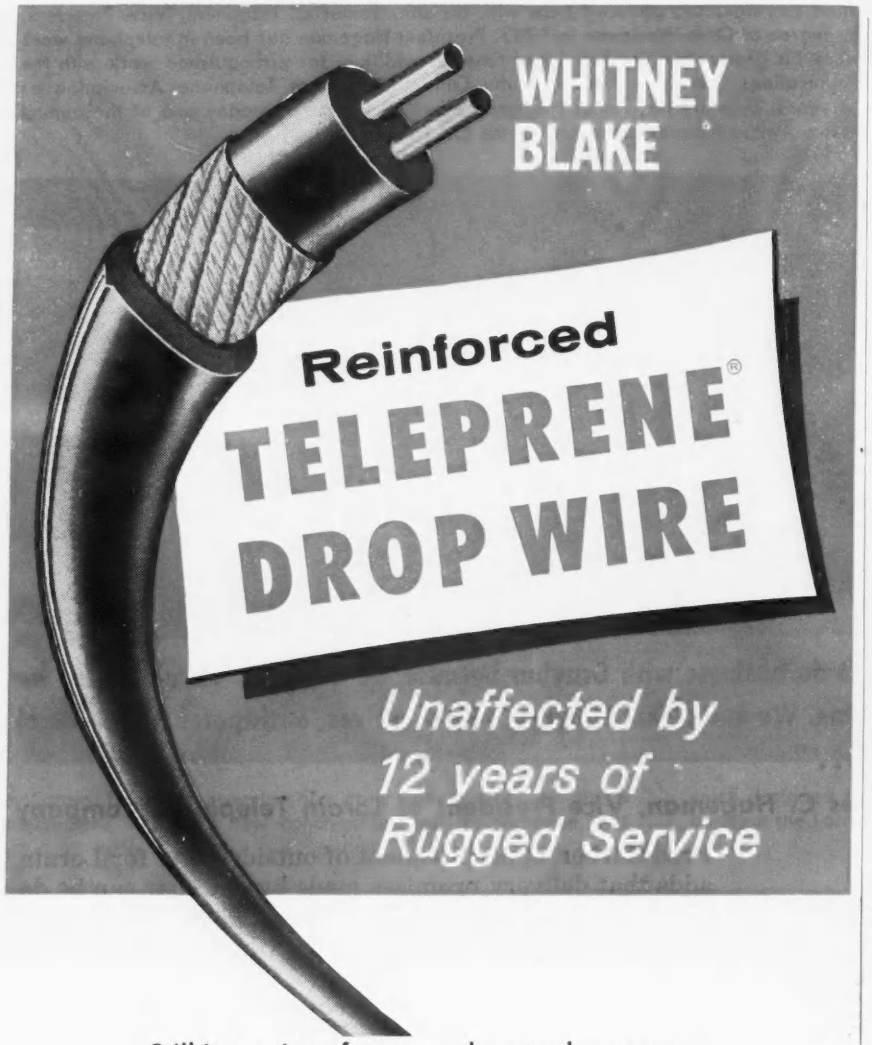

Still in service after more than twelve years . . . that's the exceptional record of WB Reinforced TELEPRENE Drop Wire . . . and there's only one reason . . . quality. By cutting drop wire replacement to the bone with Reinforced TELEPRENE, Whitney Blake has proved that even if you could get drop wire for nothing, unless it stands up as long as WB TELEPRENE, service calls and replacements would cost you more.

INDEPENDENT

WB

This wire is REA approved

1-8

WELL BUILT WIRES SINCE 1899

WHITNEY BLAKE COMPANY

NEW HAVEN 14, CONNECTICUT

Roy E. Mullin Appointed New Onan Sales Manager

ROY E. MULLIN has been appointed as general sales manager of D. W. Onan & Sons, Inc.

Hiram Hascall, formerly general sales manager and now vice president in charge of sales, is retiring at the end of the current year after more than 16 years service in these capacities.

ROY E. MULLIN

Mullin became general sales manager last month, although Hascall remains on active duty for the balance of this year and will be available in a consultant capacity for some time thereafter.

Chance Co. Purchases Joslyn Manufacturing Plant

A. B. CHANCE Company has signed a memorandum of intent to purchase the Chehalis, Washington Crossarm Plant of the Joslyn Manufacturing & Supply Company. The Washington plant will expand the Chance Company's crossarm production facilities which include five American Crossarm and Conduit Company plants acquired in 1957. This company, which operated as a wholly owned subsidiary was disolved June 30th into the A. B. Chance Co. and will operate as the American Crossarm and Conduit Division of the A. B. Chance Company. Fred Masterson who was President of the American Crossarm and Conduit Company has been made a vice president of the A. B. Chance Co.

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Executive Appointments Announced by North

H. C. Ryon, vice president in charge of the telephone division, North Electric Co., announced three new executive appointments in the sales administration section of the Galion, Ohio, equipment manufacturer.

D. F. Snyder has been appointed sales manager, telephone division.

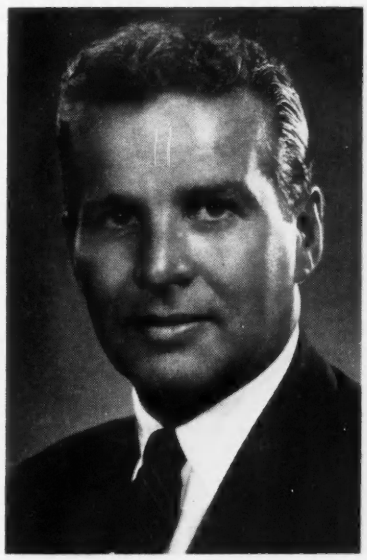
D. F. SNYDER

Associated with North Electric since 1935, Snyder has held various sales positions with the company since 1948. In 1950 he was placed in charge of government sales and in 1952 was promoted to field sales manager, the position he has held until his new assignment.

Ryon also announced the appointment of M. G. Ryon to assistant sales manager, reporting to Snyder. Joining North Electric in 1938, Maurie Ryon moves to the home office from the position of regional manager of the Northeast, which included the states of New York, Pennsylvania, and New Jersey, as well as the New England states.

M. G. RYON

Joseph P. Jefferson has been added to the sales staff of the telephone division, Ryon also reported. Jefferson will be sales promotion manager, reporting to Snyder. He was formerly associated with the industrial division of the company as Ericofon Promotion Manager, a position he has held for the past year and a half.



J. P. JEFFERSON

Communication Wiring

A FOUR-PAGE, illustrated booklet describing a system for installing surface-mounted communication and power wiring is now available from The Wiremold Company.

The Tele-Power Duct System consists of two parallel runs of Wiremold raceways — one for telephone and other communication wiring; the other a multi-outlet system for power and light service.

The booklet describes the two most commonly used systems, Wiremold 3000 and Plugmold 2100, together with available standard fittings. Photos of actual installations and suggested specifications are included. For information write *The Wiremold Co., Dept. TE&M, Hartford, Conn.*

COTTON
Serviceable for all around uses. Standard everywhere.
NYLON
Smooth texture, easy to handle. Preferred for switchboard use.
NEOPRENE
Very popular because easy to keep clean. Moisture and grease proof.

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CORDS

the WORLD'S FINEST

...for every purpose!
...for every instrument!

Take your choice—Neoprene, Nylon or Cotton. They're all high quality cords made in accordance with Runzel high standard of quality. We carry large stocks of cords to meet every need. Our geographical location means Quick Service.

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PARTNER WANTED

Veteran manufacturer serving the Independent telephone industry has excellent opening for a junior partner to assist its president, learn entire operation and advance to operating head of the company. Well-known company has A-1 reputation in telephone field; earnings are excellent. Real opportunity offered to hard worker. Salary open. Some investment necessary. Employes know of this advertisement. All replies will be *CONFIDENTIAL!!!* Address Box 25, c/o Telephone Engineer & Management.

MICROWAVE TECHNICIANS (10)

Must have minimum 5 years of experience (may include appropriate military service experience) in the operation, maintenance and repair of electronic communications equipment. Must have experience in testing, trouble shooting, alignment and calibration procedures. Must be experienced in the use and operation of electronic testing equipment.

Long term assignment in island possession of the U.S. High rates plus living expenses. Must be U.S. Citizen. Send complete resume, stating availability and minimum acceptable starting rate.

DESIGN SERVICE CO., INC.

76 Ninth Ave. New York City

CABLE SPLICERS, Station Installers, equipment Installers. Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1211 Kenmore Avenue, Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

TELEPHONE ENGINEER familiar with all phases of telephone facilities. Good salary for right party. McGrath Engineering Co., Inc., 209 W. 6th Street, Topeka, Kansas.

WANTED: Chief accountant Class A telephone company, 24 exchanges, dial conversions nearly completed. Write giving full details of education, experience and salary expected. Allied Telephone Company, P. O. Box 2177, Little Rock, Ark.

ENGINEERS

EE degree or equivalent, with minimum of 2 years experience in field maintenance and operation of microwave equipment, plus 5 years experience in maintenance of electronic communications equipment. Must be experienced in setting-up and supervising preventive maintenance, trouble shooting procedures and testing facilities. Must be capable of supervising and administrating group of technicians engaged in the maintenance of a microwave link.

Must have first class FCC radio phone license.

Unusual opportunity for qualified man to achieve recognition in the communication field.

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DESIGN SERVICE CO., INC.

76 Ninth Ave. New York City

WANTED: Well qualified cable splicers and helpers. Write: Neale Construction Company, 3100 Topeka Ave., Topeka, Kan.

TRAFFIC ENGINEER — An excellent opportunity exists for a Traffic Engineer experienced in automatic service for large offices as well as non-attended offices and toll circuit work. Location in Latin American country. Knowledge of Spanish helpful but not essential. Contract for one year, extendable to two years with possibility of permanent position. Adequate salary and allowances. Send snapshot with resume (which will be held confidential) to Box 27, c/o Telephone Engineer & Management.

EQUIPMENT ENGINEER experienced in multi-office automatic equipment with broad background in maintenance. Opening in Latin America. Knowledge of Spanish helpful but not controlling. Contract for one year, extendable to two years with possibility of permanent connection. Attractive salary and allowances. Reply with resume and recent photograph to Box 26, c/o Telephone Engineer & Management.

FOR SALE

FOR SALE—North Electric MCXR1000, Serial No. 200G Switchboard; used 4 years, 400 lines, 11 links per group, 3 PBX groups, 10 paystation lines, 5 outgoing and 4 incoming FS trunks, 9 two-way toll trunks. Available immediately. Can be seen any time at Home Telephone Company, Simpsonville, South Carolina, R. D. Coker, Mgr., WOrth 3-4400.

LEICH 901 — Wall or desk magneto telephones. Cleaned, tested and guaranteed. $16.50 each. As removed from service, $15.00 each. Turtle Lake Telephone Company, Turtle Lake, Wisconsin.

SWITCHBOARDS and EQUIPMENT

No. BD-110 Complete Switchboards with rubber cables, jacks, lamps, relays, etc. (Circuit equal to W.E. No. 12 Switchboard) Very Good Used Condition.

PARTS FOR WESTERN ELECTRIC No. 12 SWITCHBOARDS

W.E. No. 275 Jacks on No. 217-A mtg. (20) per)
W.E. No. 141 Jacks on No. 112 mtg. (20 per)
W.E. No. 365 Jacks on No. 136 mtg. (10 per)
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(Above Parts All Reconditioned — Excellent Condition)

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L10 to 533A Leich handset

3 to 5 bar wall telephones (recently removed from service).

50 to 100 each heavily creosoted 6 and 10 pin cross arms new. No pins, two or more thousand.

Old, Western U, green glass insulators, in boxes, No 9 Hemingray.

Several many tailed arrestors, never used.

Lot of through bolts, pins, galv. arm braces, ⅜ galv. cable, 200 or more through locust pins-take insulator each.

This is a job to crate for shipment, hence much prefer truck removal.

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NINE-POSITIONS of Common Battery Universal Cord Circuit Kellogg 6-800 Switchboard. Now in operation to be replaced with new toll board Jan. 1, 1959. Will consider selling in sections. Equipped with: 500 common battery subscriber lines of which 300 can be converted to magneto, 20 interposition trunks, 80 ring-down trunks with dial jacks and busy lamps, 40 dial trunks equipped with dial jacks and busy lamps, 15 cord circuits on each position, 5 frequency divided harmonic ringing, capacity 200 additional local lines and 40 additional trunk circuits, complete with all power and ringing equipment ready to put into operation. West Jersey Telephone Co., Belvidere, New Jersey.

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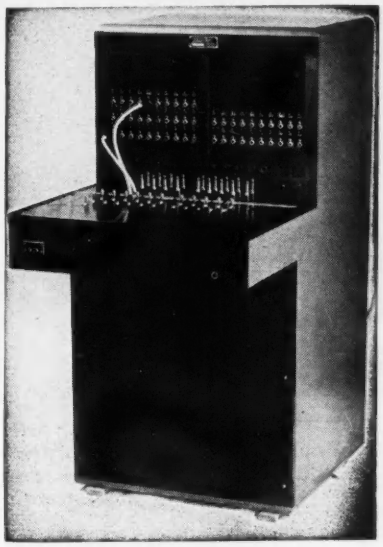

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(completely reconditioned)

Western Electric #302 with F-1 handset, 5-H dial Ringers: St. line, Synchromonic 16, 30, 42, 54, 66 cycle—Ready for service—immediate delivery $12.50

#302, as above, equipped with F-4 handset with T-1 transmitter — U-1 receiver (500 type) $15.00

#302, as above, but blanked for dial (F-1) $10.00

A.E. type 40, St. line, 16, 30, 42, 54, 66 cycle ringers, with #24 or later type dial (fully reconditioned) $12.50

(coiled handset cords, add 50 cents)

Switchboard Supplies, jack & lamp strips, relays, cords & plugs, cord & trunk equipment, rep coils. New & Good Used — Huge Savings

SWITCHBOARDS — NEW

Stromberg Carlson — *$1000 Value*

New 100 line—50 equipped with combined drops & jacks, wired to 15′ 51 pr. braid cable stub—Night alarm ckt. (no code alarm) 10 cord circuits (single supervised) with repeating coils. Standard-low type, 30″ cordshelf (desk height) built for Navy—never used—Hardwood (birch or maple) cabinet, painted green.

Clean as a whistle—tested—

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Prints on request.

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W.E. 551 A, 40 line, rebuilt like new $400
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Stromberg-Carlson #106, 80 line, rebuilt $400

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Start now by using CB phones in town — one of these coils connected to each drop, thru condenser to common battery will provide CB service on that line.

KELLOGG

C-111

Subscriber signals operator by lifting handset and rings off by restoring it.

New $2.50

Used—A-1 ..... $1.50

Mounting—
10 coil for
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Condensers for use with above 75c each.

Shipped on Approval—Satisfaction guaranteed

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BOOTHS — Acoustic Telephones — *Sherron Metallic Corp., 1202 Flushing Ave., Brooklyn 6, N. Y.*

BORING MACHINES, EARTH — *Highway Trailer Co., Edgerton, Wisc.*

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POLES, Creosote & Creosote Penta-Treated, Southern Yellow Pine — *Piedmont Wood Preserving Co., P.O. Box 700, Augusta, Georgia.*

POLES, Southern Yellow Pine — *Taylor Colquitt Company, 217 E. Main St., Spartanburgh, S. C.*

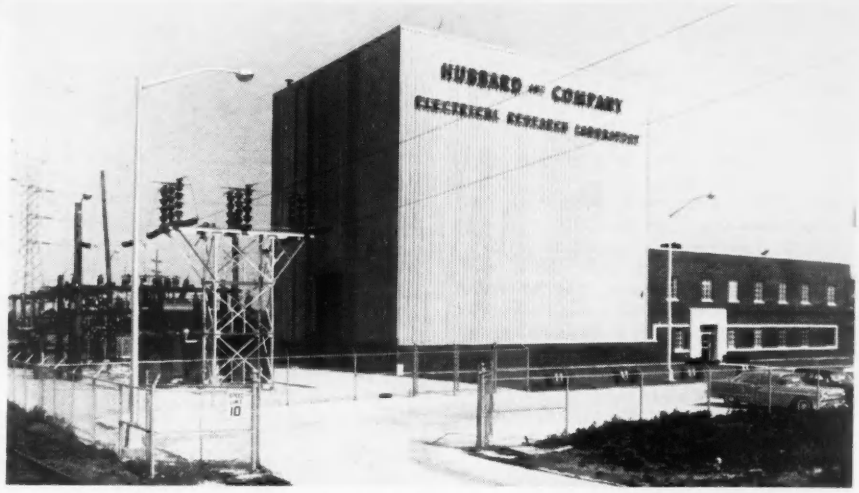
POLES, Southern Yellow Pine — *Texas Creosoting Co., Orange, Texas.*

PROTECTIVE EQUIPMENT — *Reliable Electric Company, 11333 Addison St., Franklin Park, Ill.*

TELEPHONE EQUIPMENT AND SUPPLIES — *Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 26, Ill.*

WIRE, Insulated — DATED DROP WIRE — Neoprene or Weatherproof — *Alphaduct Wire & Cable Co., New Brunswick, N. J.*

WIRE, Insulated Drop and Bronze or Copperweld — *Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.*



The Hubbard & Co. Electrical Research Laboratory is located on a seven acre tract of land in McCook, Illinois, a suburb of Chicago. View shows power laboratory, power test area, high bay and offices.

Hubbard & Co. Opens New $1-Million Research Lab.

ON JULY 22 Hubbard & Co. held formal opening and dedication ceremonies at its newly completed Electrical Research Laboratory in McCook, Ill., a suburb southwest of Chicago. The Laboratory is the realization of plans formulated by Hubbard management to serve the growing electric and communications utilities through research and testing.

At the dedication of the Hubbard Laboratory, officials of Hubbard Co. emphasized the importance of the research service to the telephone industry. Although the opening ceremonies included much in the way of power line protective equipment demonstrations because of the more spectacular aspects of these tests, the standard pole line hardware products definitely will play an important part in the laboratory's future research and development planning.

Facilities for field testing of hardware items used by the telephone industry were included in the tour and typical tests demonstrated. A spokesman for the company stated, "We are providing every possible facility for the production of the best power and communication hardware, the best apparatus, top quality street lighting and railway equipment, and we are devoting equal effort to all."

Founded in 1913, Hubbard & Co., supplied the railroads with tools and steel specialty items and, when the communication and electric power industries began to emerge just before the turn of the century, Hubbard & Co., became the pioneer and leading manufacturer of pole line hardware. Later the company expanded its line of products to include certain electrical protective equipment.

The primary purpose of the laboratory is to integrate all engineering, research and development facilities of the company into one area to provide leadership in the improvement of existing electrical apparatus and pole line hardware, and in the design and manufacture of new products.

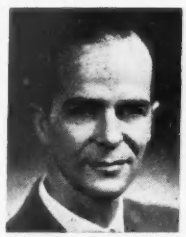
Whitney Blake Co., New Haven, Conn., has named CHARLES G. CUMPSTONE, telephone sales manager. Cumpstone will have his headquarters in the Chicago office which he organized in 1946. He joined the company in New Haven in 1942. Before assuming his new duties, Cumpstone was field sales representative covering the states of northern Michigan, Illinois, and Indiana, eastern Ia., & Wisconsin.

STROMBERG-CARLSON

Transmitter

A DIVISION OF GENERAL DYNAMICS CORPORATION

News and views of Independent telephone people. VOLUME 7, NO. 6 • SEPTEMBER, 1958



George Forbes

Where did the Postman take his Holiday?

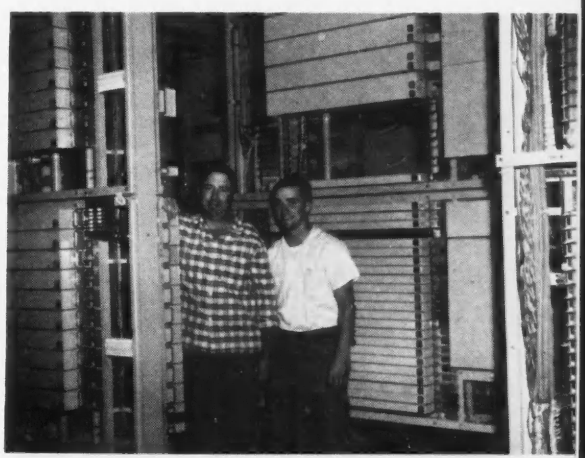
We were back where we started — just two of us this year — and the intoxicating scent of new places, new faces, strong in our nostrils as the car headed across Ohio toward the "Chicago Territory."

"Plan another Customer Trip this summer," T. C. (Tommy) Thompson had said, "and ask Jim Pfaender to set it up."

Arbitrarily setting the Mississippi as western limit and the Ohio as southern boundary, we pored over maps every week-end in April. What a Wonderland this country is . . . and how fortunate that good Independent Telephone people have chosen to live and work here!

As introduction to the 1958 Postman's Holiday series, to start next month, we submit a few photos chosen at random. Won't you have a little fun trying to guess where our itinerary took us? (Answers next page)

1) If you know this Salesman, it's easy to identify this State Capitol, as he makes his home in this "City between the Lakes."

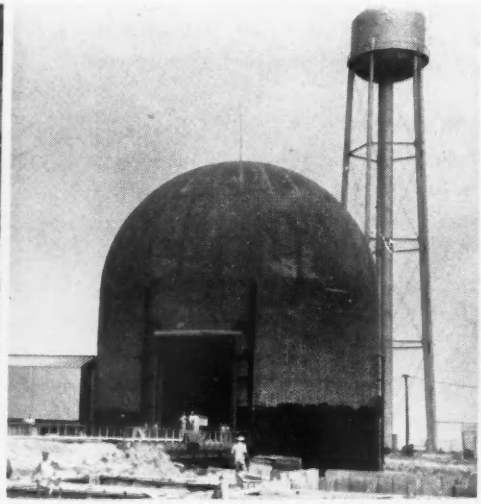


2) This may be hardest of all to locate, as XY® Dial is becoming the Standard of Independent Telephony. This fast growing exchange is 18 miles north of Bay City, Michigan.

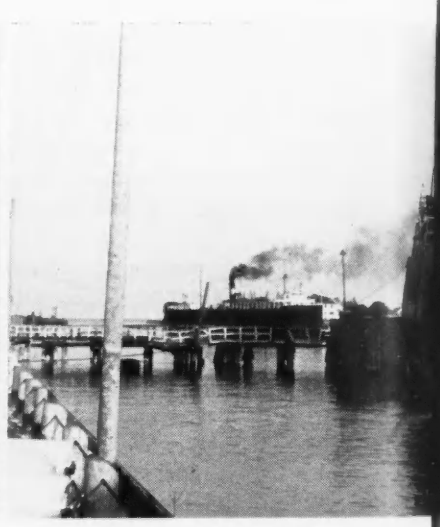
3) "You go up two feet and slip back one" . . . Best to climb in bare feet . . . and I'll never forget rolling down! Gigantic sand dune being blown inland from the lake.

4) Jack Hardy is Secretary of the State Telephone Association that headquarters in this capitol city. On outskirts of city is impressive Tomb of Abraham Lincoln.

5) Exquisite handiwork painstakingly fashioned from natural materials by the area's oldest inhabitants. Guess the principle decorative material for these jeweled boxes.



6) Putting the Atom to work. This gigantic project for generating electricity by atomic fission has "landed" in the first Independent territory south of Detroit.



7) Busy lake port is single terminal on eastern side for five Car Ferry routes crossing Lake Michigan. Comfortable overnight sail eliminates 300 miles driving between Green Bay Region of Wisconsin and Leelanau County in Michigan.

9) Perfectly clear to any telephone man—or is it? Looks as if this pole has quite a load to carry. Cable Splicer has a deadline to meet—cutover was only a few days away.

10) Trout for breakfast! Two small popeyed boys who crossed with us on Car Ferry believed my story that I'd thrown a line over, and snared them from Lake Michigan.

11) The Lady here attends all Conventions in Michigan and Ohio. Her husband is President of Michigan Association, also operates exchanges in Ohio.

Independent neighbors live and work here

12) This statue dominates a high bluff on Rock River between Dixon and Rockford, Ill. At his feet, across the river, is a manor where you learn how good food can be. Telephone Company in this city has new exchange which is a showplace.

8) As many as 20,000 people in a single day use these boats to explore unspoiled river scenery and the several narrow gorges accessible only from the water. Even though taken after hours in a downpour, this excursion will be remembered as "not over-advertised."

Answers (1) Leo Rubendall, Wisconsin sales representative, and Mrs. Forbes at Madison, Wisconsin. 2) Plant Supt. Clinton Delano (left) and Harold Schumann, Pinconning, Mich. 3) Sleeping Bear Sand Dunes, Glen Arbor, Mich. 4) State Capitol at Springfield, Ill. 5) Indian lady, Leelanau County, Mich., weaves porcupine quills into birch bark, the variegated coloring forming the design. 6) Atomic power development near Newport, Mich. 7) Harbor at Frankfort, Michigan, with Ann Arbor R.R. car ferries. 8) Wisconsin Dells, Wisc. 9) Joint-use pole at Greenwood, Wisc. 10) They were real, and good, especially early in the morning at Benzie State Park. 11) Mrs. Donald Carlson and son David at home in Morenci, Mich. 12) Black Hawk Statue near Oregon, Ill., served by DeKalb-Ogle Telephone Company.

Arlie New, of Thomaston, Georgia, has a Round Table . . . by-product of a fine telephone plant.

combination of "thrust" and "pull," with messenger guying applied to the secondary pole.

Uncrate with care!

Robert Riordan of the Pulaski (Wisconsin) Telephone Company, figured that these words on the shipping crates of his XY® Dial Equipment had a double meaning. His first dial exchange is running so well that he must have observed the *usual* rules for this printed warning. But he had noticed that the wood was a good quality pine. Carefully drawing the nails, he had the boards

A huge cable reel laid on its side, with lower lip sunk in concrete, forms a round table; another of the same size was cut in quadrants and sunk a little lower for seats. To top it off, a third (smaller) reel was cut in half, dropped in the core of the "table" to make a giant "Lazy Susan."

"And swing me a little more of that barbecue sauce, please. This chicken sure hits the spot!"

Relax on the Pole Line

This idea-man prefers to remain anonymous — after all, he couldn't

Ideas . . . .

Can you use one of these?

This page is a two-way street. The ideas all came from our Independent telephone customers . . . glad to pass them on if anyone else can use them. Other readers have had equally good ideas; won't you let us have them for use in future issues?

Where did that Guy go?

John Sattler, Leelanau (Michigan) Telephone Company, had no problem with the line shown when it just carried two pairs of wire. But his exchanges have had remarkable growth since he took over management; the two large cables recently strung are convincing evidence. Because of the road there was no room for conventional guying, so he has accomplished the same result by a

grooved by a local carpenter; they make a very rich-looking paneled recreation room in the basement of his new home. Simple and inexpensive . . . yet your reporter this summer twice saw similar crates being burned outdoors on a hot day.

Pass the Potato Chips
(Swing, that is)

Arlie New, of Thomaston (Georgia) Telephone Company, likes a tasty barbecue in the side yard . . . also likes to make it as easy and pleasant as possible. That calls for a table, benches, and a way to pass food around. All were provided by empty cable reels — an expendable item when you've had a building program such as the New Family experienced.

supply all his subscribers with terracing material. Brick and stone are expensive in his area, but he had just replaced a lot of poles, well creosoted and the upper portion for the most part still good. Cut into 6″ to 7″ round slabs and laid, circumferences touching, on a 2″ layer of sand spread over well-tamped earth, he has a terrace that is unusual, lasting . . . and for him, inexpensive. Spaces between slabs were filled with a mixture of small stones and clay as a binder. For better drainage the terrace was given a slight pitch toward the garden.

"Let's have a cup of tea on a telephone pole."

Mr. and Mrs. Robert Riordan, of Pulaski, Wisconsin, recently moved into a new home.

Pole-Line problem solved by John Sattler of Leelanau (Michigan) Telephone Company.

Mr. John Rand, next to banner, holds "Certificate of Quality Service," a reflection of his operations at Chester. Banquet guests included representatives of the REA; Design Service Co., engineering firm; Stromberg-Carlson and community officials and subscribers.

Dial for Chester Telephone Company

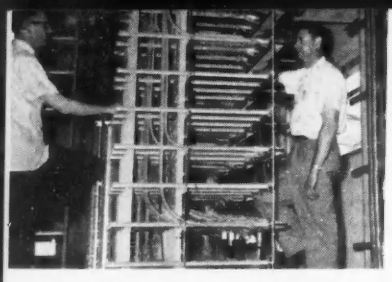
First REA project in New Hampshire

Mr. John S. Rand, president of the Chester Telephone Company, and Mr. E. F. Sullivan, Stromberg-Carlson sales representative, examine power panel in the 140-line, 500-terminal exchange.

When John S. Rand, president of the Chester Telephone Company, decided to have a well-deserved celebration for the conversion to XY® Dial, the banquet had a double meaning for his company and its subscribers. Through the valuable assistance of the REA (the first time this government organization has had the opportunity to aid a New Hampshire company), Chester and the surrounding area were brought all the advantages of dial service.

With Chester now dial, Mr. Rand has begun to concentrate his efforts on other exchanges under his direction: Weare Telephone Company, which also will be converted to XY Dial through REA assistance, and the Windsor Telephone Company in Hillsboro Upper Village. Mr. Rand operates from Manchester, conveniently located near Chester, to the east, and the other two exchanges, to the north and west.

Neither snow nor thaw kept young and old from seeing new dial equipment and building at Chester



Shown running jumpers on new main frame in Newberg are Dick Marshall, Beaverton, and Ken Shires.

More Oregonians are enjoying reliable dial service

Jack Dodd, wire chief; Eileen Gregory, both of Elko; and Robert Holt, Stromberg-Carlson service engineer, Portland, Ore., enjoy jubilant atmosphere at Myrtle Creek.

Mrs. Bernice Guedon, left, is at Beaverton toll center; Mr. Kenneth Shires, local manager, and Mrs. Lois Livengooid, cashier, carry on at Newberg.

More Oregonians are enjoying reliable dial service than ever before. This welcome change to dial is the result of progressive planning by two great Independent Telephone Companies: The West Coast Telephone Company of Everett, Washington, and California-Pacific Utilities Company of San Francisco.

The cutover at Newberg, Oregon, had a rather special meaning to personnel of the West Coast Telephone Company. The company's 30*th* anniversary almost coincided with this inauguration of XY® Dial service, marking a new high in the company's spectacular growth — emphasized through the Newberg conversion.

The new dial equipment will afford direct access by dial to West Coast's major toll center at Beaverton. Twenty-four toll trunks between Newberg and Beaverton serve the new 1050-line, 2800-terminal exchange, located just south and west of busy Portland.

The double celebration, anniversary and cutover, was momentary, as renewed vigor on a "job to be done" turned attention to the start of increased activity and dial service elsewhere in the company's three-state area of operation.

U. S. Highway 99 twists and turns through the heart of the world's last big stand of Douglas Fir trees — that is where you'll find Myrtle Creek and Canyonville, Oregon. Here, too, XY Dial equipment is giving nearly all the communities in Southern Douglas County the kind of telephone service they expect.

George O'Mealy, district manager for the California-Pacific Utilities Company, likes dial service. So do area subscribers. They feel much like other subscribers served by the company in California, and Nevada, as well as Oregon. Company Headquarters are in San Francisco.

Myrtle Creek's Mayor J. D. "Bud" Groom called the Bay City at cutover, the first telephone call from the new dial system. He spoke with Mr. E. K. Albert, president of the California-Pacific Utilities Company, and conveyed the community's feelings: That the area is fortunate to have improved communications and a fine two-story exchange building.

Others present at the cutover, from the operating company, were: the late W. W. Stahl, then chief engineer; Harold Bright, equipment engineer; Jack Dodd, wire chief; Eileen Gregory, traffic supervisor; and Mr. E. Sands, Southern Oregon division manager. Representing Stromberg-Carlson were Ernest Larson and Robert Holt.

Four positions of the Stromberg-Carlson No. 3 Toll Board at Myrtle Creek, Oregon.

Gathered around the information turret during Myrtle Creek cutover were: Helen Arrowood, at turret; the late W. W. Stahl, then chief engineer; Eileen Gregory, traffic supervisor, Elko, Nev.; Mildred Bewley, chief operator, Myrtle Creek; all of California-Pacific Utilities Company.

Asotin Sequel

Rugged Crew Tames Rugged Country

A month ago, when we touched on some of the highlights of the cutover to XY® Dial of the Asotin (Washington) Telephone Company, we gave you only part of the story.

The receipt of additional material now enables us to fill in some of the details — and interesting details they are. Building lines over this rugged terrain presented some awesome obstacles. The pictures on this page give you an idea of what had to be overcome — and *was* overcome by what Mr. E. R. Tyler, Asotin President, describes as a "great crew."

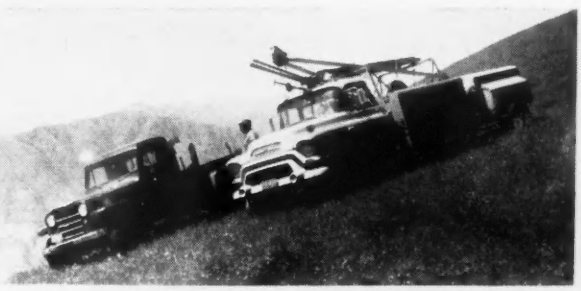
Mr. Tyler goes on to say that progress, in spite of obstacles, was rapid. In short order the wire was in place and the XY Dial equipment, the wiring houses, etc., were soon ready to provide modern dial service to the area.

Meanwhile, plans are going forward with all speed to extend the benefits of dial telephony to rural subscribers to other sections of the territory served by this growing Independent.

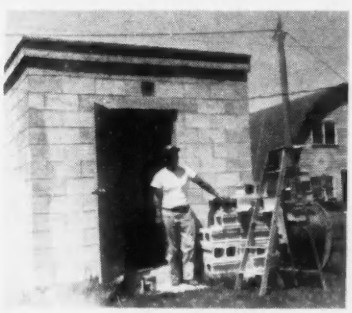
Commanding view of the "corner" where Washington, Oregon and Idaho meet gives a dramatic picture of the ruggedness of the terrain. Despite the vast height, it took only four poles to reach the bottom.

The descent from the summit with horse, wire and reels begins. The use of animal transport to negotiate the steep descent points up an interesting contrast between old-time methods and the modernity of dial telephone service.

Here construction equipment is poised where the road ends in the Grande Ronde Snake River country.



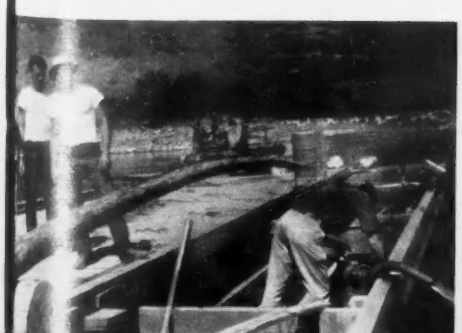
Work progresses smoothly in spite of the steep, rocky nature of the terrain. The men are preparing to set and guy the poles.



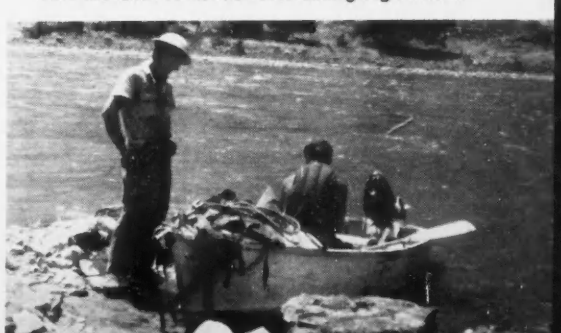
The Anatone dial building has a roof of reinforced concrete and walls of pumice block. Note the R. D. cable, with which the town will be wired.

Mr. and Mrs. Harold Ennis enjoy some well-earned leisure. Mr. Ennis was in charge of the Asotin installation.

Construction crewmen prepare a wire crossing over the Grande Ronde River during high water.



The bridge is home-made, but effective, and the need for it points up the kind of obstacles encountered. Mr. Tyler himself came up by boat the day before to make arrangements for the river crossing. The result: the first means of outside communication for the people of the area.



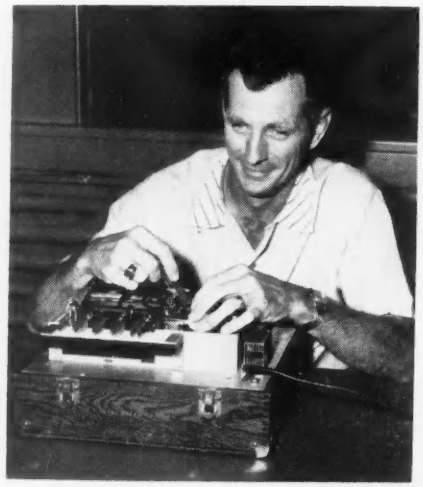
Dial in Clifton and Ore City, Texas means Better service for resort and industrial areas

Telephone service and the Blewetts just seem to go together; and they should. For J. W. Blewett, Jr., manager of the Clifton Telephone Company in Texas, has been in Telephony just as long, really, as his father, J. W. Blewett, Sr.; and that's been since 1936.

But not until 1950 did the Junior Blewett really feel the true enthusiasm of Independent Telephony; that is when he bought the Clifton Company and, with his father's valuable experience, began to build it into its present three-exchange operation.

A beautiful headquarters building in Clifton houses the 500-line, 1100-terminal dial equipment and a Stromberg-Carlson No. 3 Toll Board. These, combined with dial operations in Laguna Park and Tunersville, provide better service for the camp-resort area west and north of Waco.

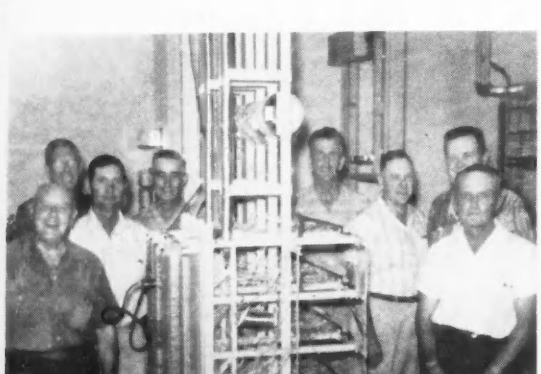
Just last month we reported that the fourth and fifth exchanges of the Etex Telephone Co-op, Harleton and Ore City, had been cut over to make the company's entire operation dial. We thought you would like to meet more of the men responsible for providing dial service to this highly industrialized area between Longview and Lone Star.



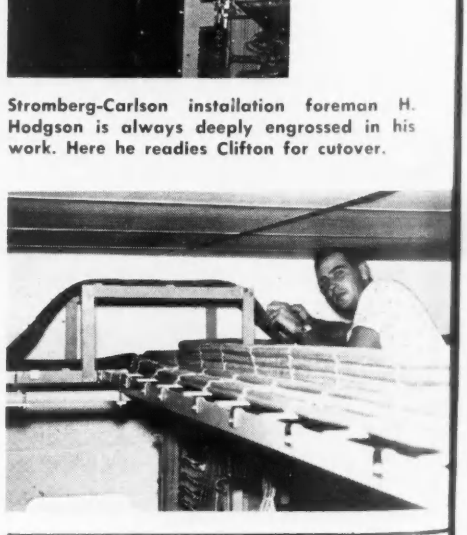
Mr. J. W. Blewett, Jr., manager of the Clifton (Texas) Telephone Company, works on XY® Universal Switch while attending XY School in Rochester.

Beautiful headquarters building for the Clifton Telephone Company.

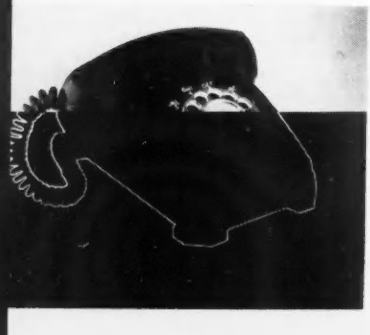
Stromberg-Carlson installation foreman H. Hodgson is always deeply engrossed in his work. Here he readies Clifton for cutover.



Present at the Ore City cutover were: C. L. Starkey, director; Max Moore, local manager; J. D. Baird, Welby Carlock, Thurman Carroll, directors, all of the Etex Telephone Company; and T. J. Campbell, Mayor; H. I. Arrington and Doug Newsom, councilmen, Ore City.



Neatly laced cable ready to carry important conversations.



Unveiling!
Stromberg-Carlson Exhibit
U. S. I. T. A. Convention
Chicago
October 13, 14, 15, 1958

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STROMBERG-CARLSON
A DIVISION OF GENERAL DYNAMICS CORPORATION
Rochester 3, New York
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THE BACK OF THE BOOK

By JOHN G. REYNOLDS

"Easy Chair Farming"

TWO FARMERS in Illinois can now sit in their living rooms and hear their cows in the barnyard — over the telephone.

Although the cows haven't been (and won't be) taught to use the phone, a new Bell System farm communications system has been designed so farmers can listen to them. From his living room the farmer can tell when there is an unusual disturbance which requires his attention in the barnyard.

This new system, installed by Illinois Bell, uses two wall-phones which have speaker-microphones installed in them and an outdoor loudspeaker and transmitter. These make it possible not only for the farmer to hear what's going on in the barnyard while seated in his easy chair, but also provide an intercommunicating system for the family between the house, barn and barnyard.

Designed to offer complete telephone and intercommunicating system for farms, three installations have been made by Illinois Bell. They are a part of a study of the system being made by the Bell System. Installations also have been made on farms in Iowa, Nebraska, Minnesota, North and South Dakota and New York.

"Look Who's Complaining"

LAST MONTH a Chicago telephone coin box thief complained after his capture that a common sneak had almost wrecked his racket.

"The guy was a crook, absolutely dishonest," said the culprit when he had recovered his breath after police tackled him plugging coin return slots with wadded paper. . .

"But that crook made it rough going for me," he said. "I'd be lucky to average $7 a day — of course, I only worked a three-hour day. You know what he'd do? He'd take out my paper plugs and stuff cotton in the slots. Then he'd come back before I did and collect. . . You know what he was? He was a parasite."

"Times Have Changed"

TRULY IT was a different world from ours back in August, 1858. Among the various items in the New York *Herald* of that date, it seems that a young man wanting "light outside work" could earn as much as 10 to 15 dollars a week. This same young man could also live at the Globe Hotel for as little as 25 to 37 cents a night. Or if he wished to stay a week, the minimum rate was one dollar.

Douglas and some unknown from the Middle West called Abraham Lincoln had just debated the abolition of slavery. The paper published the latter's remark solely, as it explained, upon the principle of fair play. At the same time the editorial page posed a question which is pertinent today. It asked "What about reducing taxes?"

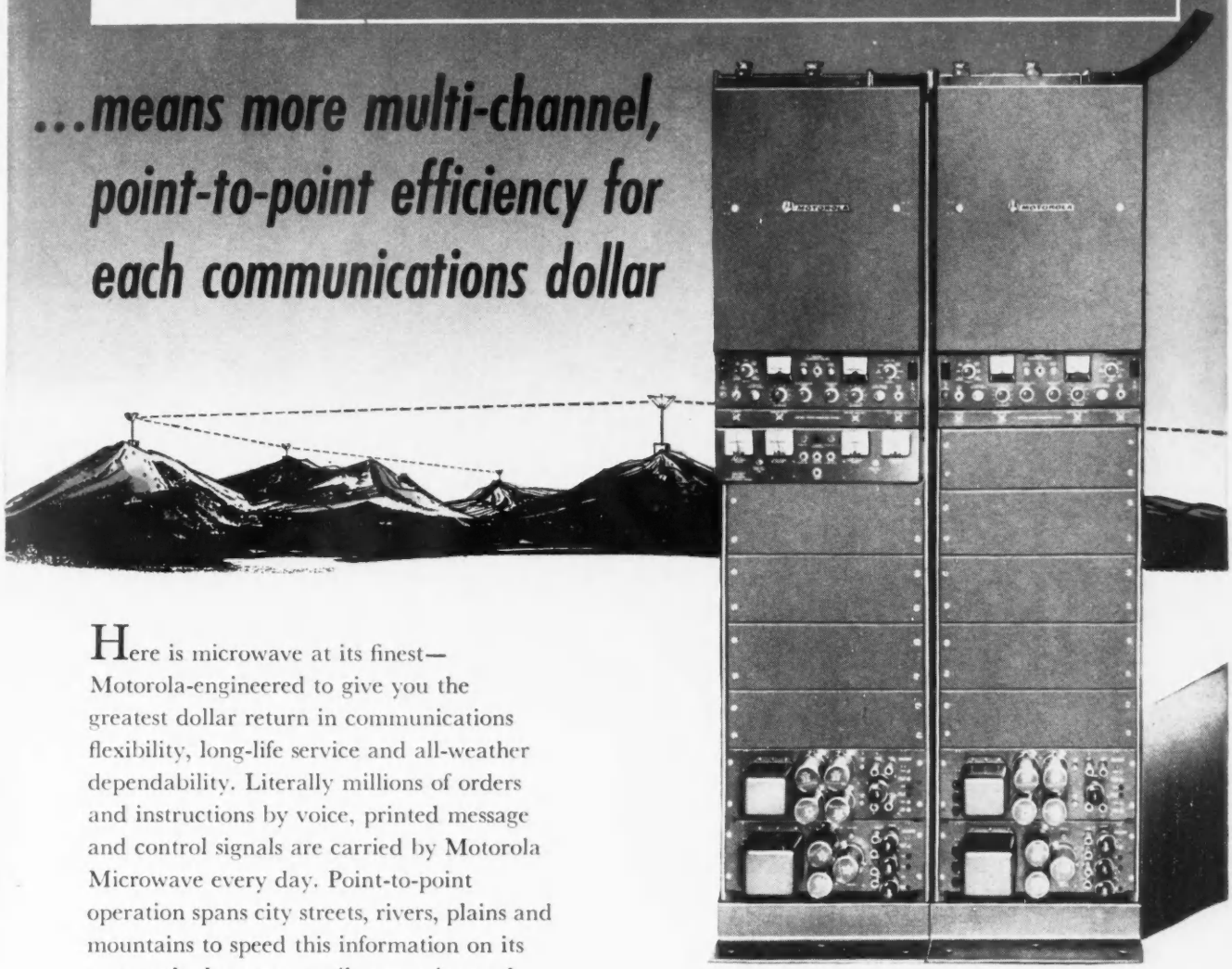
Bell 'Oracle'

BELL TELEPHONE Laboratories announced recently a combination of the ancient and the modern to provide accurate glimpses into the future of the telephone industry. The modernized "oracle," named Sibyl after the ancient prophetess, will simulate a variety of future communications devices and systems to permit them to be tested without the expense of building special equipment for one time use. It will also provide data on how telephone users would respond to new services.

"THAT'S THE ONLY THING I GOT AGAINST BUILDING POLE LINES IN TEXAS."

MR-20 MOTOROLA MICROWAVE

...means more multi-channel, point-to-point efficiency for each communications dollar



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- **Frequency Diversity** . . . provides maximum circuit continuity in 5925-6425 MC band.
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